

Kite-Flying Associated Injuries in Rawalpindi

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Objective: To have a cross sectional view of the burden of injuries resulting from the kite flying activity with respect to age and sex of affected population and spectrum and nature of injuries.

Place and Duration of study: The study was undertaken in the surgical departments of two Allied hospitals, Benazir Bhutto Hospital (BBH) and Holy Family Hospital (HFH), Rawalpindi from 10th February to 31st March 2009 during the Basant festival.

Study Design: Retrospective cross sectional Study.

Materials and Methods: Patients of all ages and either sex, who were victims of kite flying activity (directly or indirectly), were included in this study.

Results: 139 (7.09% of all admissions) cases were found to be specifically related to kite-flying. 40 (28.78%) cases were of simple cuts on fingers caused directly through the string of the kite, with all patients having burn over the palmer aspect of at least one hand. Young boys were victim of fall from roof resulting in fractures, in 28 (20.1%) upper limb, in 13 (9.4%) lower limb, in 12 (8.6%) head trauma and 29 patients (20.9%) had multiple bruises and lacerations while 15 (10.8%) had neck injuries resulting from chemical-coated strings. 01 (0.72%) firearm injury was also reported.

Conclusion: A preventive program should be developed to diminish the number of kite-flying-related invalidating sequels. Legislations are effective by providing automatic passive protections but educational reinforcement is also needed.

Key Words: Kite-Flying, Trauma, Bruises, Injuries, Fractures, Lacerations.

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Introduction

Kite-flying is a popular sport in children and young adults in many cultures around the world. Kites have been introduced more than three thousand years ago in China from where the kite flying experience traveled throughout Asia, Europe, and later in America, Australia and other countries around the globe.¹ Kite flying is a traditional recreation in Pakistan as well and is celebrated as "Jashan-e-Bharan" or Basant at the start of Spring season in the months of February and March.

Previously kite flyers mainly used kite-string which was made with three to nine layers of variously treated cotton thread. In the early 1980s, elastic kite-string and nylon cord were introduced but kite enthusiasts were not too keen to adopt them as the cotton thread can slice through the competitor's kite-string while nylon cord broke it, which was against traditional rules of kite flying. In the recent past kite fighters started using metallic, chemical and glass powder coated string (Manja) to make the competition of kite fighting more challenging. Use of such strings has

turned the simple traditional fun of kite flying deadlier and now it has become the potential cause of severe injuries, disabilities and deaths each year.^{2,3} Statistics documented in 2006 show that about 450 people have been killed during the kite-flying festival in the last ten years in Pakistan.⁸

This year the Supreme Court ban was lifted for 15 days starting from 15th February 2009 on popular demand and has resulted in patients coming to emergency department due to kite flying injuries. This study is designed to document the number of cases presented to our hospitals during Basant festival in 2009 with spectrum of injuries and to suggest different preventive and safety measures in this regard.

Injuries of kite flying activity are commonly sustained by kite-flyers, kite-runners, riders of two wheelers and pedestrians. Injuries related to kite flying commonly range from mild injuries to severe disability and death and may manifest with varied clinical presentations with chemical, metallic and manja strings.

This retrospective study was conducted to evaluate the pattern and rate of kite surfing injuries over a period of one and a half month approximately during

Basant festival form 10th Feb to 31st Mar 2009, and included admissions through accident and emergency departments of two Allied hospitals of Rawalpindi, Benazir Bhutto hospital (BBH) and Holy family hospital (HFH).

Materials and Methods

This study was conducted in the surgical departments of two Allied hospitals, Benazir Bhutto Hospital (BBH) and Holy Family Hospital (HFH), Rawalpindi from period of 10th Feb 2009 to 31st Mar 2009, which was the peak period for the celebration of Basant festival in Pakistan.

Inclusion criteria: Patients of all ages and either gender were included in the study. Only the patients who were injured as a result of kite-flying activities (directly and indirectly) were registered.

Exclusion criteria: Patients with injuries due to accidents other than kite-flying who presented to surgical wards in this period of study were excluded.

Results

Among the 1967 admissions (810 in the month of February and 1157 in March) during the study period, a total of 139 (7.09%) patients were included in this study. The age range was 10 to 49 years with the mean age of 25 years. Maximum number of patients (55%) was injured directly or indirectly due to kite string as compared to 38% due to falls. Maximum number of injuries (63%) was found in age group 10-29 years followed by 37% in age group 30-49 years (Figure III).

Table 1: Spectrum of Injuries In Different Age Groups

	INJURY TYPE	10-29 years	30-49 years	total	%age
A	Simple Cuts on Fingers	27*	13	40	29%
B	Bruises and Lacerations	19**	10	29	21%
C	Neck Injuries	6	9	15	11%
D	Fractures Upper Limb	22***	6	28	20%
E	Fractures Lower Limb	5	8	13	09%
F	Head Trauma	8	4	12	09%
G	Gunshot Injuries	-	2	2	01%
	Total	87 (63%)	52 (37%)	139	100%

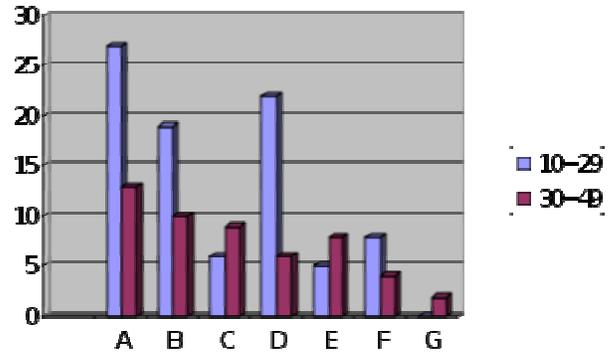


Figure I: Graph Showing Number/Types of Injuries in Different Age Groups

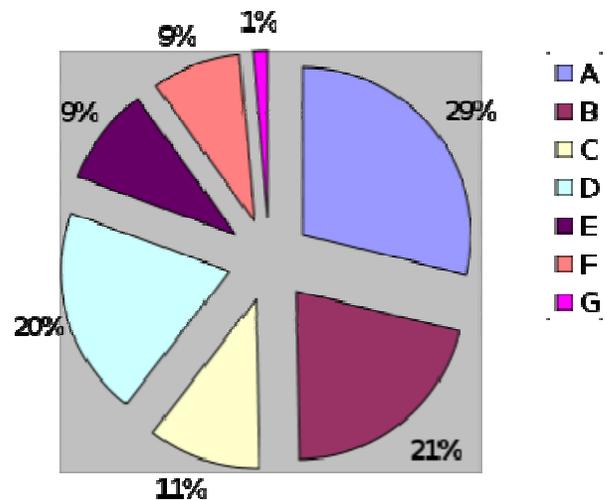


Figure II: A Pie Graph showing the percentage (%) of all Injuries

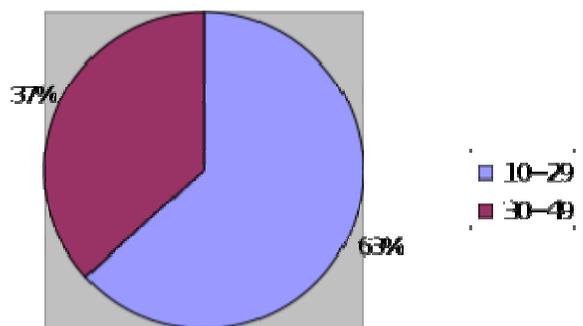


Figure III: A Pie Graph showing the (%) of Injuries in Both Age Groups

Of the 139 cases, 126(91%) were males and 13(09%) females; the difference amongst boys and girls was statistically significant (p<0.01) with a male to female ratio of 9:1. The types and number of injuries with

respect to different age groups during this study are tabulated below (Table1 & Figure1). Figure II shows the maximum cases occurred following simple cuts on Fingers (29%), followed by those due to bruises and lacerations (21%) and neck injuries (11%), fractures of bone of upper limb (20%), and lower limb (09%) were commonly encountered. Whereas the injuries caused by head trauma and gunshots accounted for (09%) and (01%) respectively.

Discussion

Most of the injuries sustained during kite-flying were due to falls, cuts, head injuries or fractures. People were also injured while on streets, riding on motor bikes, children catching wandering cut off kites on the roads. Teenagers sustained most injuries due to falls related to kite-flying activities. In traffic accidents the major consequences were fractures and wounds. Head injury was the major consequence of falls. Kite flying might look like blossom floating in the wind, but it is one of the dangerous sports in the world. Every year this gruesome game has left hundreds of people with sustained injuries and disabilities and many others dead in India, Pakistan and Bangladesh. Among all age groups this is a popular sport in children and young²⁰ and thus more injuries are observed in younger age groups (Figure1). In this study a decrease was observed in the number of injuries with increase in age. Majority (63%) of victims were in the age group 10-29 years followed by 37% in the age group of 30-49 years. A study done in India shows that kite flying is associated with various modes of injuries in children.²⁰ Prevention of childhood injuries is of great importance to both individuals and society, but unfortunately, has largely been either excluded from attention or treated in an inappropriate manner.^{10,12} The most common potential mode of childhood injury identified was falls, which was similar to a previous study^{3,10}. Most children and young adults presented with history of fall resulting in fractures, head trauma and multiple bruises. Falls are more common among boys than girls.^{25,28} Similar results were obtained in the present study i.e. (91% males & 09% females) with a male to female ratio of 9:1. Similar results were reported¹⁹ that boys are most frequently affected in accidents. Childhood falls are an important global public health problem. Falls are a leading cause of the global burden of injury to children^{26, 27} resulting in more than 37,000 deaths annually for those aged 15 years.²⁸ In the European Union, falls are the fourth most-common cause of child death, and the leading cause of hospital admission and emergency department visits²¹. Several workers reported that the falls were more frequent cause of injuries.^{13,15,18} The present study also showed that maximum cases of injuries were due to falls. It has been recommended that special attention be given to

the prevention of falls in the home environment. While there have been several systematic reviews^{5,17,29} and meta-analyses^{4,9,11,22} addressing the prevention of home injuries in childhood, none specifically addresses fall prevention in relation to kite flying that children do from the roof of their homes. Kite flying is associated with wide range of injuries ranging from simple cuts (29%) to grave lacerations and neck injuries or head trauma. Table I shows the injuries observed during our study period with their magnitude in different age groups. Palmer aspect of the hand was the commonest site of injury to a kite-flyer or even to those who try to catch the kite string. In the literature lacerated wounds caused by manja are described.¹⁶ Such injuries are caused by the fast moving kite-strings, especially Manja, and in few cases it also involved incised internal structures like tendons and blood vessels. Even the workers indulging in preparation of such dangerous threads are liable to be injured but no reports were made on these types of occupational injuries. According to this survey, fractures account for a total of 29% of kite flying injuries. Sports fractures are very common.²

A recent study showed that sporting activities are third most common cause of fractures⁶. In our study upper limb fractures are more (20%) as compared to lower limb fractures (09%) and this finding is consistent with other studies.² They are more common in males with an incidence of 901/105 in males aged 12—19 years.⁶ Injuries to head and neck region calculated in our study was 20%. Motorcyclists, cyclists and pedestrians including both the adult and elderly people may sustain injuries when they come across strings of a flying kite or a wandering kite because of inattention to their surroundings.²⁴ The killer thread “Manja” if having the white color may prove to be more dangerous as that is not easily visualized by motorists. Injuries sustained by the two wheeler riders were severe compared to pedestrians as severity of injury depends upon both the speed of two-wheelers and the moving kite. A large body of evidence from America, Australia, and the UK suggests that both incidence and severity of head injury are lower in cyclists wearing helmets at the time of an accident, compared with those who are not.^{7,14,16} It protects against head trauma and face from kite string injuries but neck is still exposed. In our study 11% cases of injuries to neck were found. 09% cases were of head trauma which was more common in children with a history of fall. It has been reported that fall from a height of about one foot over a concrete surface may lead to fatal head injury.³ In this study period one gunshot injuries (0.72%) were reported. Although in our study no case of electrocution was found, there has been report in literature stressing about the unique danger of the kite flying. A case is reported in which death was caused due to electrocution by a copper wire that was used as string for flying the kite.²⁴

Kite flying is very common in Pakistan. Therefore proper preventive measures, increasing awareness about the possible effects of such a sport and offering social counseling to the families can help to reduce the incidence of injuries in our population. For obtaining this objective, the need is to increase the awareness of the parents and society and to reduce the incidence of such injuries, this study is a small part of that investigation.

Conclusion

A preventive program should be developed to diminish the number of kite-flying-related invalidating sequels. Legislations are effective by providing automatic passive protections but educational reinforcement is also needed.

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