

Introduction

With the development of automobile industry in the Kyrgyz Republic there appears a problem of road safety. Its successful solution is vitally important not only for economic development of the country but also for the most valuable thing – preservation of life and health of people and, first of all, children. The road accident situation remains alarming. Thus, from 2001 to 2003, 9468 traffic accidents were recorded in the Kyrgyz Republic, 2255 of them involved children resulting in death of 337 children.

The aim of this study was to assess the situation regarding traffic accidents and traffic related injuries in children of the Kyrgyz Republic.

This work was carried out within the project “Road safety in the city of Bishkek” with the technical support of the World Health Organization and WHO Liaison Office for Kyrgyzstan. Studies were conducted from November 2003 to January 2004.

Materials and Methods

The study reviews data on all modes of transport, accident rates and the number of registered traffic accidents (TA). The sources of information were reporting forms on TA from the Centre of Analysis, Forecasting and Prevention of the Department of Motor Inspection of the Ministry of Internal Affairs of the Kyrgyz Republic. Data of a 3 year period were analyzed (2001-2003).

In addition, the state of population health was analyzed including children’s and adults’ morbidity due to traffic related injuries (TRI). In 2003 the total number of traffic accidents involving children was 749 and the total number of traffic accidents involving adults was 3380. Injury and morbidity data were taken from the Republican Medical Information Centre of the Ministry of Health of the Kyrgyz Republic, health care facilities in the Bishkek city (reporting form 12-1) and from the National Statistical Committee (reporting forms C51) for 2000-2002. Health data were expressed per 100 000 population.

Besides, opinion surveys of the population concerning road safety issues in Bishkek were conducted. In total, 400 respondents participated in the survey, of them 156 persons (39%) were foot passengers, 244 persons (61%) – drivers.

Results

Data analysis by type of ownership of motor transport in Kyrgyzstan (2002-2003 years)

Diagram 1

Transport owned by juridical persons

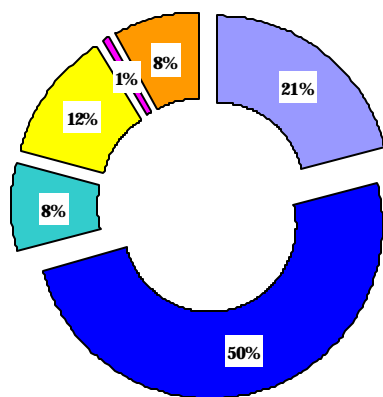
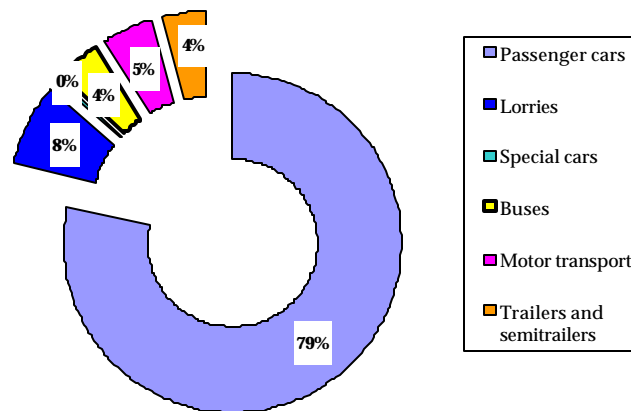


Diagram 2

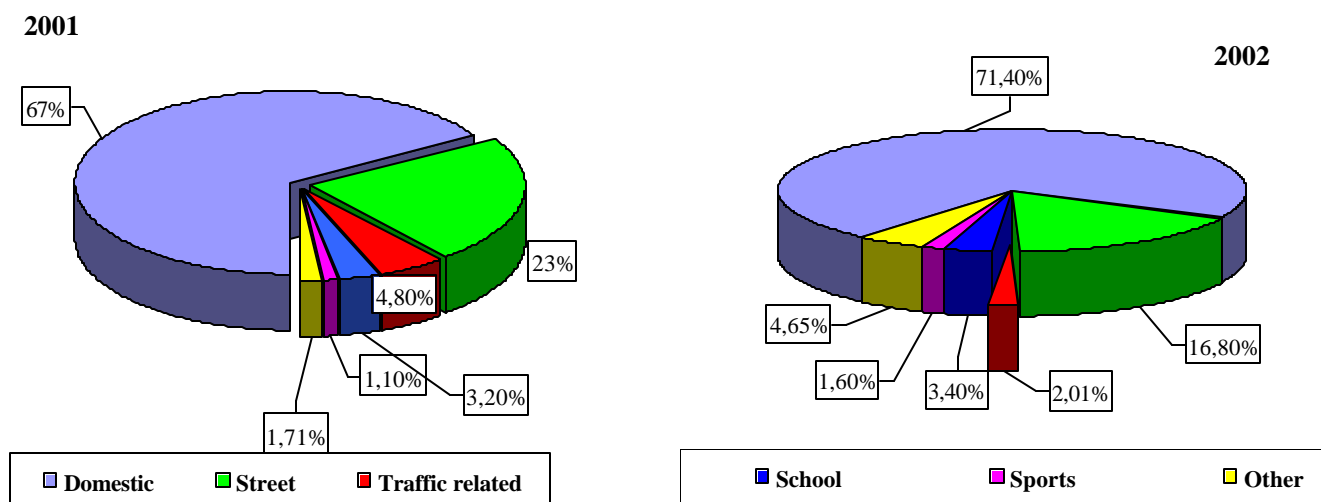
Transport owned by physical persons



In the Kyrgyz Republic the most prevalent mode of transport is passenger cars (79% physical persons and 21% juridical persons, diagrams 1,2) and their number is increasing every year. One third of the national car pool is concentrated in the capital of Kyrgyzstan – Bishkek (Department of Motor Inspection of the Ministry of Internal Affairs of the Kyrgyz Republic). As of beginning of the year 2003, the total recorded number of motor transport units was 279281 including 85478 units in the city of Bishkek.

The structure of causes of injuries in children of the city of Bishkek, 2001/2002

Diagram 3

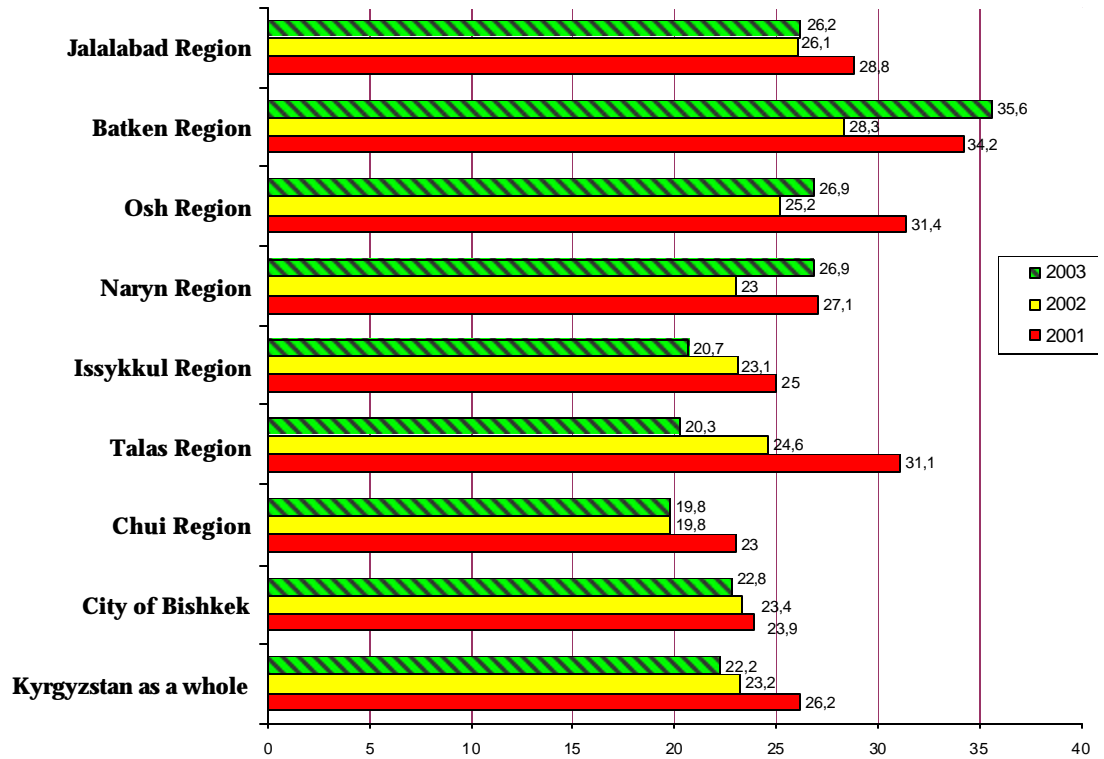


Among injuries in children traffic accidents come third after domestic and street accidents (diagram 3). For the period 2001 -2003 562 children suffered traffic related injury, of them 23 died (5 – in 2001 9 – in 2002, 9– in 2003) and 562 children were injured

According to statistics every fifth person injured in a road accident is 16 or less years old. More than half of those persons injured in a road accident are school children of 6 to 15 years of age.

Diagram 4

Traffic accidents occurring with children in 2001-2003 (%)



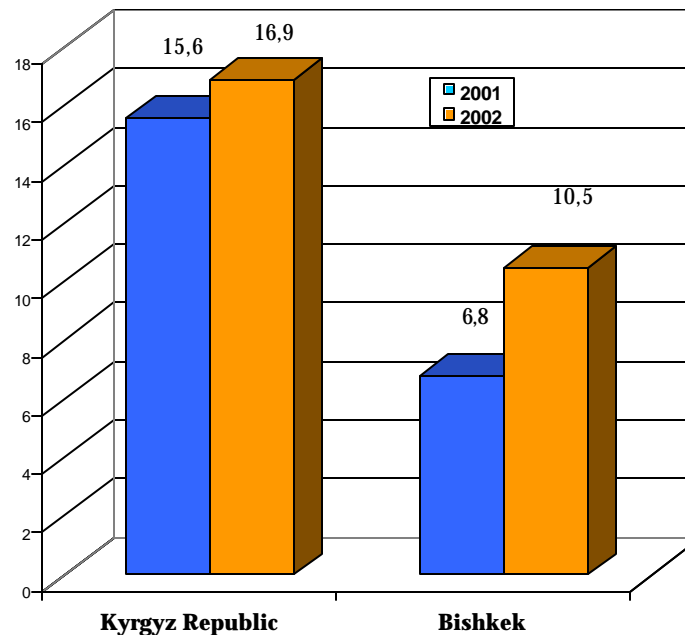
Comparison of the percentage of traffic accidents involving children by the region showed that in the last 3 years the percentage was higher in the southern part (Batken, Osh and Jalalabad Regions) than northern part of the republic. However, this percentage for Bishkek was almost one fourth of all traffic accidents involving children (diagram 4) in the entire republic.

Distribution of injuries by site in children of Bishkek in 2001-2002

Table 1

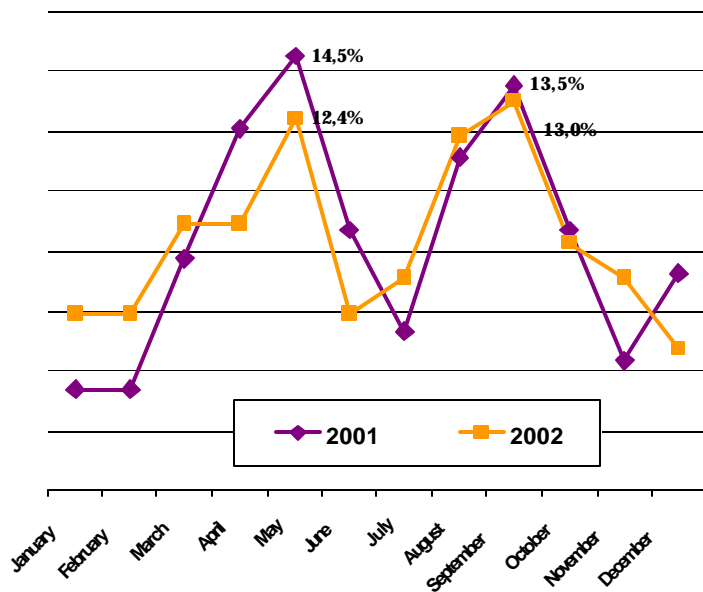
?	Class of diseases (ICD 10)	2001		2002	
		TRI	%	TRI	%
1	Craniocerebral injuries	56	20,7	17	27,9
2	Spinal injuries	2	0,7		
3	Upper extremity injuries	85	31,5	10	16,4
4	Lower extremity injuries	13	4,8	10	16,4
5	Pelvic bone injuries			2	3,3
6	Chest injuries	15	5,6		
7	Abdominal injuries	4	1,5		
8	Other	93	34,4	22	36,1
9	Total injuries	268	100	61	
10	Fatal outcomes	5		9	

Traffic related injury severity coefficient



Despite a decrease in the total number of injuries related to traffic accidents involving children, the severity of consequences of traffic accidents has increased, i.e. the number of craniocerebral injuries and fatal outcomes increased in 2002 as compared with 2001 (table 1, diagram 5).

Distribution of traffic accidents by the month
Diagram 6



Distribution of traffic accidents by day of the week, Bishkek
Table 2

Days of the week	Years	Traffic accidents with children			
		TA	%	Died	Injured
Monday	2001	33	15,9		35
	2002	27	15,9	1	26
Tuesday	2001	32	15,4		34
	2002	20	11,8		20
Wednesday	2001	34	16,4	2	33
	2002	26	15,4		26
Thursday	2001	28	13,5		29
	2002	24	14,2	3	24
Friday	2001	34	16,4	1	34
	2002	28	16,6	2	28
Saturday	2001	24	11,6	1	23
	2002	26	15,4	2	27
Sunday	2001	22	10,6	1	25
	2002	18	10,6	1	20
Total	2001	207	100	5	213
	2002	169	100	9	171

The analysis of seasonality of traffic accidents showed that the highest number of them occurred at the beginning and end of the summer period (**May and September**), i.e. in the period of vacations (diagram 6).

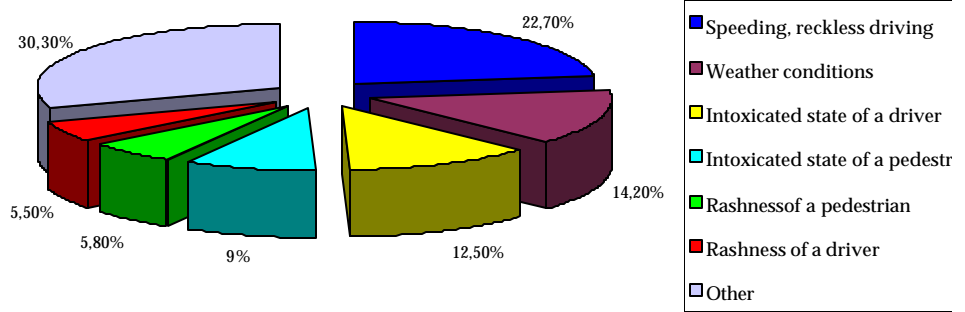
The most accident-prone days of the week were **Friday** (16.5% of total traffic accidents), **Monday** and **Wednesday** (15.9%), and next - **Thursday** (13.8%, see table 2).

Within a day's period, the occurrence of traffic accidents is highest from **17 to 23** hours. Traffic accidents occurred 1.5 times more frequently in dark time than in daylight

The analysis of the results of the survey of inhabitants of the city of Bishkek concerning road safety issues allowed identification of the following causes of traffic accidents.

Diagram 7

Leading causes of traffic accidents



Respondents who happened to be involved this or other way in a traffic accident in the past gave most frequently the following answers to the question about causes of traffic accidents: violation of the speed regime by drivers, unfavorable weather conditions, drunkenness of drivers and pedestrians, next – carelessness of pedestrians and drivers (diagram 7).

Respondents named the followings factors as most important in contributing to reduction of the number of traffic accidents: “circumspection, unhurriedness and alertness when crossing the road”, “attentiveness of drivers to pedestrians”. Next they cited “learning of rules of the road by pedestrians”, “correct behavior of parents and children on the roads”, “raising the effectiveness of Motor Inspection Service”, “promoting road safety in mass media”. Next, “making punishment of drivers more severe” and “increasing the responsibility of other services”. The following factors were rated as insignificant: “improving legislation”, “warning of the population by city administration about road renovation”, “blocking of streets”.



CONCLUSIONS

- Among injuries in children caused by traffic accidents come third after domestic and street injuries.
- Every fifth traffic accident victim in the Kyrgyz Republic is among children, of whom 68,9% are schoolchildren aged 6 to 15 years.
- In the past 3 years the highest level of traffic accidents involving children is recorded in Batken Region (26.0% versus 23.8% nationwide) and in Bishkek 23.3% of all traffic accidents occur in children.
- In 2002 in Bishkek there was a 4-fold decrease in the total number of traffic accidents involving children (61 cases against 257 cases in 2001) but at the same time the severity of consequences of traffic accidents increased, i.e. there was an increase in the number of craniocerebral injuries and fatal outcomes.
- The highest number of traffic accidents was found:
 - by the season* - at the time of vacations and school holidays (*May-September*);
 - by the day of the week* - the most accident-prone days were *Friday, Monday and Wednesday*;
 - by the hour of the day* - the highest number of traffic accidents took place in the evening and night-time from *17.00 to 23.00 hours*. Traffic accidents occurred 1.5 times more frequently in dark hours than in the daytime.
- In the opinion of respondents the main causes of traffic accidents were *speeding violation, unfavorable weather conditions, drunken state of drivers and pedestrians, and lack of circumspection of pedestrians and drivers*.
- In the opinion of respondents the most important factors *for reducing the number of traffic accidents* were:
 - behavioral reactions (characteristics)*, i.e. “circumspection, unhurriedness and alertness when crossing the street”, “attentiveness of drivers to pedestrians”;
 - knowledge, education and promotion of Rules of the road*: “pedestrians should study rules of the road”, “correct behavior of parents and children on the roads”.

To reduce the number of traffic accidents and, first of all, traffic accidents involving children it is necessary to study and, most importantly, for one and all to observe Rules of the road regardless of age and driving a car or not.



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