

Seatbelt and child-restraint use in Kazakhstan: attitudes and behaviours of medical university students

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ABSTRACT

Traffic fatalities in Kazakhstan increased from 15 to more than 30 per 100 000 between 2001 and 2006. Mortality remains high compared with developed nations. Safety-restraint laws have been enacted, but little data exist regarding usage of seatbelts, particularly among children and passengers. This cross-sectional study surveyed medical university students about attitudes and behaviours regarding seatbelt and child safety-restraint usage. Seatbelts are widely used in the front seat (81%) but not in the back seat (79% 'never' or 'rarely' use a seatbelt in the back seat). Fewer than half reported 'always' or 'almost always' providing restraint for children under 7 years and 24% reported children secure the seatbelts themselves. Safety in the back seat merits attention. Adults generally do not buckle in the back seat despite a law requiring seatbelt use. Promotion of child safety restraints should be prioritised in prevention education for physicians and the community.

Traffic crashes are responsible for over a million deaths worldwide and at least 20 million injuries annually.¹ Injuries related to traffic crashes are occurring with greater frequency in low-income and middle-income countries where automobile use is expanding rapidly. In Kazakhstan, the injury rate per 100 000 population increased from 15 to more than 30 between 2001 and 2006.² While the benefits of safety restraints are well established,^{3 4} it is clear that a multipronged strategy for injury prevention is necessary to reduce injuries and mortality. Successful interventions to effect a cultural shift in attitudes about safety include education, legislation and enforcement of safety laws.¹ Healthcare professionals are important leaders in injury prevention and health promotion; thus, their attitudes and behaviours regarding motor vehicle safety are important to informing the development of interventions.⁵

Kazakhstan is a middle-income country with about 17 million people and an average annual household income of 5500 Euros. Like many countries in the former Soviet Union, automobile ownership has grown substantially. An estimated 2.7 million automobiles are in use. Kazakhstan has developed traffic laws that include the required use of seatbelts for all adults (Traffic Code Sections 2 and 4) and safety restraints for children in the front seat (Traffic Code Section 22). Child safety restraints are not required in the back seat. According to a WHO report, a consensus panel of experts gave Kazakhstan a rating of 6 on a scale of

1 to 10 for enforcement of seatbelt and child-restraint laws.² However, no data on actual use are available.²

Lack of enforcement puts everyone at risk. A WHO report notes that two in three traffic deaths in Kazakhstan are among drivers of four-wheeled cars or light vehicles.² The number of child passengers has increased as families find work in urban areas and commute from rural towns where the cost of living is more affordable. In the early 2000s, 90% of children hospitalised for injuries after traffic accidents were pedestrians; by the late 2000s, 60% of injured children were passengers.⁶ Although seatbelt use is required by law, many preventable deaths continue to occur, and children remain at greatest risk because laws are not yet in place to protect them.

The purpose of this study was to obtain baseline data on medical university student attitudes and behaviours around seatbelt and child-restraint use.

METHODS

This cross-sectional study was conducted during infection control courses attended by medical university students. Students were approached to enrol in the study while they were attending a course during the study period (April to November 2013). A researcher, neither on faculty nor involved in medical education, introduced the study to students in the classroom setting.

To protect students, the survey was anonymous; no names or other identifiers were included on the survey. A written informed consent was provided to potential participants; however, a waiver for a signed informed consent was granted because the consent itself would be the only identifier linking results to the participant. To minimise peer pressure to participate, students were told that if they wanted to decline participation they could leave the survey blank or write anywhere on the form 'do not use' and it would be discarded.

The survey included questions about the participant's demographic and education characteristics, and a seven-question module on seatbelt and child safety-restraint usage. The questions included attitudes (ie, seatbelts increase safety, seatbelts are not convenient or practical for me, I need to have the right to decide for myself) and behaviours (ie, consistency of seatbelt use in the front seat and back seat, use of child safety restraints).

The study was approved by the S. D. Asfendiyarov Kazakh National Medical University (KazNMU) Research Ethics Committee. Data were entered in

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Microsoft Access (Microsoft Corp., Redmond, Washington, USA) and exported to SAS (SAS, Inc., Cary, North Carolina, USA) for analysis. Statistical analyses included bivariate analyses to identify whether any demographic or educational characteristics were associated with attitudes or behaviours related to seatbelt and child-restraint use.

RESULTS

Of the 1000 students who agreed to enrol, 926 students completed the survey sufficiently for inclusion in these analyses (table 1). The majority of students were females (78.0%) who were 21 or 22 years old, reflecting the sex and age distribution of the medical university. Most students were single (90.3%), but females were twice as likely as males to be married (8.3% compared with 4.5%, respectively, $p < 0.05$). Female students were also more likely to live in dormitories (26.2%) compared

with male students (13.0%); conversely, male students were more likely to live on their own or with friends (40.5%) compared with female students (28.9%, $p < 0.001$). Aside from these sex differences, female and male participants were equally likely to be from urban versus rural areas and had a similar, middle-income socioeconomic background.

In general, students know seatbelts improve safety (93.2%, table 2). Students also report they believe seatbelts are *not* inconvenient or impractical (75.7%). However, 1 in 3 students want to have the right to decide to use a seatbelt or not, with males more likely to want this right compared with females (46.3% vs 28.6%, $p < 0.01$).

Seatbelt use in the front seat is widely reported (81.2%), but a nearly equal proportion (79.3%) reported ‘never’ or ‘rarely’ using a seatbelt in the back seat. Child safety restraints were not frequently used. Overall, 44.1% reported always or almost

Table 1 Demographic characteristics of surveyed medical university students, Kazakhstan, 2013

Factor	Male		Female		p Value
	N	%	N	%	
Age (years)					
19–20	33	16.84	143	20.21	0.1028
21–22	125	63.78	469	66.24	
23–27	38	19.38	96	13.55	
Missing	7	–	15	–	
Year of study					
3 or less	12	6.09	62	8.66	0.2422
4 or more	185	93.91	654	91.34	
Missing	6	–	7	–	
Major					
General medicine	187	92.12	641	88.90	0.1623
Public health	5	2.46	27	3.74	
Preventive medicine	3	1.48	32	4.44	
Other	8	3.94	21	2.92	
Missing	0	–	2	–	
Married or cohabitating					
Married	9	4.50	59	8.30	0.0324
Cohabitating	8	4.00	12	1.69	
Neither	183	91.50	640	90.01	
Missing	3	–	12	–	
Residence					
Spouse/partner	17	8.50	71	9.95	0.0003
Parents or relatives	76	38.00	250	35.01	
On own or with friends	81	40.50	206	28.85	
Dormitory	26	13.00	187	26.19	
Missing	3	–	9	–	
Family residence					
Oblast centre	82	40.80	307	42.93	0.8496
District centre	66	32.83	230	32.17	
Rural area	53	26.37	178	24.90	
Missing	2	–	8	–	
Family economic condition					
Difficult to buy clothes	21	12.07	72	11.45	0.9810
Buying long use items (eg, refrigerator) is problematic	48	27.59	176	27.98	
Can afford much, but nothing expensive (eg, car)	81	46.55	300	47.69	
Can easily afford buying a new car	24	13.79	81	12.88	
Missing	29	–	94	–	

Table 2 Attitudes and behaviours of medical university students regarding seatbelt use

Factor	Male		Female		p Value
	N	%	N	%	
Seatbelt use increases your safety while driving					
Agree/completely agree	186	92.54	670	93.31	0.9279
Neither agree nor disagree	4	1.99	13	1.82	
Disagree/completely disagree	11	5.47	35	4.87	
Missing	2	–	5	–	
Seatbelts are not convenient or practical					
Agree/completely agree	43	21.94	122	17.04	0.2605
Neither agree nor disagree	13	6.63	44	6.15	
Disagree/completely disagree	140	71.43	550	76.81	
Missing	7	–	7	–	
I want to have the right to decide whether to use a seatbelt or not					
Agree/completely agree	92	46.23	205	28.55	<0.001
Neither agree nor disagree	10	5.03	35	4.88	
Disagree/completely disagree	97	48.74	478	66.57	
Missing	4	–	5	–	
How consistent was your use of seatbelts in the front seat during the past month?					
Never/rarely	28	13.86	96	13.30	0.7381
About half the time	13	6.44	37	5.12	
Always/almost always	161	79.70	589	81.58	
Missing	1	–	1	–	
How consistent was your use of seatbelts in the back seat during the past month?					
Never/rarely	161	79.31	571	79.31	0.9598
About half the time	6	2.96	24	3.33	
Always/almost always	36	17.73	125	17.36	
Missing	0	–	3	–	
During the past year, how often did you fasten children under 7 with a child restraint?					
Never/rarely	104	52.26	347	48.87	0.5760
About half the time	10	5.03	47	6.62	
Always/almost always	85	42.71	316	44.51	
Missing	4	–	13	–	
During the past year, how often did a child fasten his/her seatbelt in a car you were in?					
Never/rarely	151	75.87	488	69.02	0.0850
About half the time	6	3.02	45	6.37	
Always/almost always	42	21.11	174	24.61	
Missing	4	–	16	–	

always fastening restraints for children under 7 years and 23.8% reported children secured the seatbelts themselves.

DISCUSSION

In Kazakhstan, seatbelt laws are in place and students widely reported using a seatbelt in the front seat, but not the back seat. Limited use of child safety restraints was reported. Addressing risk in the back seat is complicated. In Kazakhstan, it is said that every car is a taxi. Indeed, a simple hand gesture will quickly result in a car picking up passengers for a small gratuity. While seatbelts can be enforced, child safety is not a simple matter. Appropriate car seat restraints must be properly installed¹; failure to do so is dangerous,^{7,8} as is the custom of children using adult seatbelts.^{9,10} For this reason, taxicabs are generally exempt from seatbelt and child seat laws in developed nations.

Educating healthcare providers and public health practitioners will be an important component in improving the use of child seats in Kazakhstan, a struggle not unique to this growing economy. In fact, fatalities in the USA are approximately double that of the UK.² High-quality data on crash-related injuries among children must be systematically collected to mobilise healthcare workers to take action. While overall mortality data are available, data specific to injuries and associated seatbelt or child-restraint use are not published. The Kazakh death rate due to road traffic incidents among children and young people is one of the highest in the WHO European Region: the country is ranked fifth for children aged 0–19 years,¹¹ and third for children and young people aged 0–24 years.¹² With an expanding economy and access to transportation, traffic fatalities have grown to become a leading cause of death, particularly in urban areas where the amount of time at risk is greatest due to the increased population and number of vehicles present.

While complicated, intervention is possible and should be thoughtfully considered, starting with formative evaluation. Despite a rather fatalistic view of life,¹³ and an ingrained negative perception of police due to a history of corruption and abuse,¹⁴ families are interested in learning about how to increase child safety in transit.¹⁵ Enforcement of safety laws is complicated by the number of informal taxis, but secondary enforcement could be strong. However, this strategy requires that laws mandating child safety restraints in the back seat be added to the Traffic Code and that quality child safety restraints be widely available in the country. In addition, oversight of child-restraint quality is tedious; in the USA, over 50 recalls have been issued in the last decade covering hundreds of models.¹⁶

With all studies, caveats exist. These preliminary data provide a baseline for developing educational messages. We used self-report data from medical university students, which can be overestimated when actual use is low; such a bias has not been seen when compliance is relatively high.¹⁷ Our anecdotal observations suggest that child-restraint use reported by our respondents is overestimated. Additionally, we did not ask more nuanced questions that could identify misuse of seatbelts (eg, shoulder strap behind back or under arm) or child safety restraints, or specific reasons for restraint use.

While this is a preliminary study, we believe that international research on the value of seatbelts can be translated to Kazakhstan. Thus, the purpose of additional research would be to better quantify the preventable injuries occurring in Kazakhstan. Perhaps more importantly, research is needed to identify ways to ensure child safety restraints are available and used properly. Additionally, researchers will need to explore ways to overcome barriers to using child-restraint systems. In addition to cultural considerations (lack of experience with child-restraint systems and use of informal taxis), we must consider the economics of use and deployment (how to handle recalls).

The economic growth of low-income and middle-income countries created an explosion in auto ownership. However, safety measures have lagged behind auto sales. Kazakhstan has moderately strong seatbelt laws and sufficiently effective enforcement for front seat passengers to report routinely using seatbelts. Given that the majority of deaths is among drivers, additional attention is clearly warranted. The safety of children and passengers in the back seat is the most pressing vulnerability. Physicians can provide an important leadership role in strengthening the law and taking action on child safety in transit.

What is already known on the subject

- ▶ With increasing automobile use, mortality due to traffic accidents is high in Central Asia compared with developed nations.
- ▶ Seatbelt laws are in place for all adults and child safety restraints are required only in the front seat.
- ▶ Children remain at great risk for motor vehicle injury and mortality. There are no child safety restraints required for children riding in the back seat.

What this study adds

- ▶ Medical university students report low adherence to proper seatbelt use.
- ▶ Use of seatbelts is widely reported in the front seat, but not the back seat.
- ▶ Fewer than half of the medical university students reported using child safety restraints among children younger than 7 years.

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