

# School Transport- Growing Concern, Health Problems and Safety of school Children.

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## ABSTRACT

**Background:** Over the years there is a great deal of concern evoked amongst school management, parents and government authorities about the way schooling of children is done. While everyone appears to be concerned about providing healthy environment in school there seems to be one vital aspect of schooling which remains neglected ie transport to school. While everybody seems to be concerned about the factors which influence health of the school going children while they are in the school there appears to be a complete disregard to the importance of providing healthy and safe transport mechanism to and from school. While active school transport like walking or cycling may be associated with decreased incidence of being overweight and obese it may be associated with increased incidence of accidents if proper precautions are not taken. Passive school transport like school bus, private transport vehicle or by car owned by parents may be associated with overcrowding (private rickshaws etc), maladjustment due to long waiting time, loss of appetite and tiredness. Moreover poorly maintained private vehicle may increase the risk of accidents while going to or coming from school. **Aims:** (1) To identify problems and concerns and safety measures adopted in transporting the children to school. (2) To highlight measures taken on transport and traffic regulations on the safety of children. **Methods:** The study was an observational study done in 10 schools scattered over the city. 500 school children of age group 3 - 15 Yrs in Bikaner were taken. School children, parents, drivers of vehicles and school authorities were interviewed with the help of a preset questionnaire. The data was analyzed using appropriate software to account for the complex sampling design. **Results:** The analysis of the data collected from the respondents revealed that the various modes of transportation used by school going children (3-15 years) include Auto rickshaws (50%), School Bus (25%), two-wheelers or bicycle (10%), Parents drop the children (7%) By foot (3%), Chauffeur driven car (5%). The most common means of transport was found to be auto-rickshaws while the least common mode of transportation to school was found to be walking to school. Various health problems encountered due to or related to means of school transport included Loss of appetite (20%), tiredness (20%), Fever (20%), body ache (20%) and recurrent respiratory tract infections (15%). In addition to these long waiting time leading to maladjustment and rare case of minor and severe injuries have also be found to have occurred during school transportation. One major concern which came to light during our study was utter disregard to safety measures by private vehicles. Drivers were found to be driving without having licenses. Most of them were found to be careless in observing traffic rules. Vehicles were also found to be improperly maintained. Many private vehicles were found to be overcrowded and drivers were found to be using mobiles and playing music loudly while driving. **Conclusion:** The study clearly brings out the fact that transport of the children to school is most neglected part of schooling. While everyone including parents, school authorities and government appears to be concerned about the condition of the schools, their environment and safety of children once they are in the school, nobody seems to be concerned much about the way these school children are transported to the school. There appears to be a complete neglect or ignorance about the impact of school transport may have on the health of school going children.

**Keywords:** School transport, Active transport to school, Health problems, Attitude of parents.

## INTRODUCTION

School transport is an important yet most neglected part of schooling. Daily millions of children go to school in India. Their journeys are mostly ignored by their parents, school authorities and even government bodies. It is presumed that they are safe during transportation to school. In many families escorting children to school had been a norm up to recent past.[1] This was the reason we used to get peak traffic densities co-inciding with the school timings. Active school transport like walking or biking up to school was also common in recent past.[2] But with

rapid motorizing of the society the scenario seems to be changing. There appears to be a gradual shift from active and escorted school transport to more motorized form of transportation which includes school bus, auto-rickshaws, private bikes and cars.[3] Another important factor which contributes towards change in patterns of school transport is the distance of school from home. With rapid urbanization schools have moved many kilometers away from residential areas. As the distance of school from home increases there is an understandable shift from active and

escorted school transport to motorized school transport.<sup>[4]</sup>

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Active school transport like walking or cycling to school is associated with many health benefits. Physical activity is important for prevention of overweight and obesity in children. Moreover it also reduces cardiovascular risk factors and later development of hypertension and diabetes. Many studies have suggested that children who usually go to school walking or on bicycle have better mental health as well as they are found to be more active in other fields outside the walking period. Walking or cycling to school (active school transport) is associated with an overall healthy school going child.<sup>[5]</sup>

Passive school transport includes school bus, auto-rickshaws, parental vehicles and chauffeur driven cars. Passive school transport is associated with reduced overall activity of the school going children. Moreover it is associated with health hazards and probability of school going children being overweight or obese. Overcrowding in auto-rickshaws and buses may be associated with spread of communicable diseases.<sup>[6]</sup> It is associated with increased incidence of respiratory tract infections and febrile illnesses. Poorly maintained buses or vehicles may be associated with back and body aches in school going children. Other adverse effects seen due to poorly managed vehicles include tiredness and irritability. Many forms of the times motorized school transport are associated with minor or serious accidents.<sup>[7]</sup>

While parents, school authorities and government bodies seem to be concerned about safety of children once they are in the school there appears to be a blatant disregard and neglect to the process of school transport. There is also scarcity of studies on this vital aspect of child health. There is only limited number of studies done in developing world on this aspect. Most of the work has been done in western countries which is quite different in demography and social milieu from developing countries like that of India.<sup>[8]</sup>

Keeping in mind the growing yet limited number of studies on health problems associated with school transport we undertook this study to identify problems and safety measures adopted in transporting the children to school and to highlight measures taken on transport and traffic regulations on the safety of children.

## MATERIALS AND METHODS

The study was done in 10 schools scattered over the city. 500 school children of age group 3 to 15 years

in Bikaner were included in the study. School children, parents, drivers of vehicles and school authorities were interviewed with the help of a preset questionnaire. The questions were aimed at knowing what measures were adopted in transporting the children to school. From this information various problems and issues were identified. The data was analyzed using appropriate software to account for the complex sampling design.

### Inclusion Criteria

School going children in the age group of 3 to 15 years.

### Exclusion Criteria

Children more than 15 years of age.  
Those who refused to participate.

## RESULTS

Total 500 school going children were included in this study. School children, parents and other personnel associated with school transport were interviewed with the help of a questionnaire. The analysis of the data was done to know effect of school transport on school going children.

### Mode of transport

The analysis of the data revealed that the most common mode of transport utilised by school going children was private vehicle or auto-rickshaws (50%) followed by school bus (25%), bicycle (10%), parents escorted children on vehicle (7%), chauffeur driven cars (5%). The least common mode of transport to school was walking to school (3%).

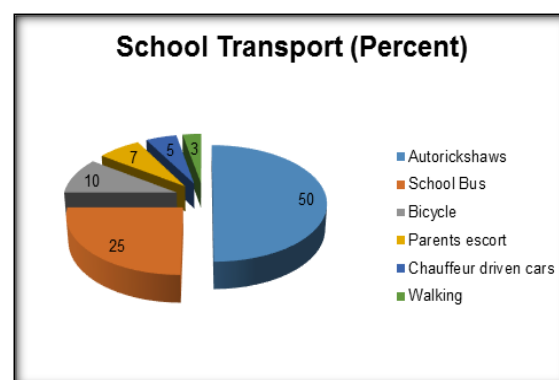


Figure 1: Types of transport to school.

### Active Vs Passive Transport

The analysis of the data of various type of school transport revealed that active school transport (bicycle, walking) constituted 13% of the means of school transport while majority of the children were going to school by passive transport (vehicles, cars or school bus etc). Various reasons for passive transport included scarcity of time, Long distance between home and school and parental fears regarding children's safety.

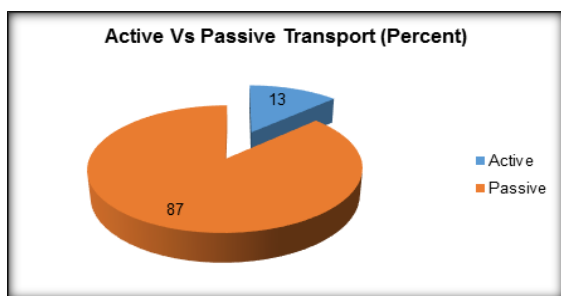


Figure 2: Active Vs Passive School transport.

### School Bus Vs Private Vehicles

While it is generally considered that school bus or a vehicle employed by a school will be safer than the private vehicles and rickshaws. Majority of the school children were found to be going to school by private rickshaws (60%). When the reasons for this were analyzed it was found that the in many instances there were no school bus or any other vehicle provided by the school and in other cases the school buses were overcrowded.

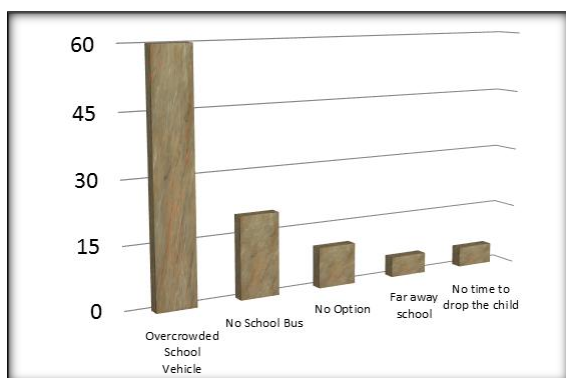


Figure 3: Reasons for employing private vehicle for transport to school.

### Use of Own Vehicles

The use of own vehicles by the parents or school children themselves was done mainly because either it was convenient for the school going child or parents, no wastage of time, independent feeling and school was situated near home. In school children whose home were near to school there was more chances of employing personal vehicle for school transport. The analysis of private vehicle used for school transport revealed that most common type of private vehicle employed for school transport was two wheeler followed by bicycle and motorcycles.

Table 1: Reasons for use of own vehicle by student or parents.

Reason for using private vehicle	Percentage
Convenient	50%
Time saving	25%
School is near to home	10%
Feel independent	10%
Peer pressure	5%

When an analysis of the children who were escorted to school by parents was done it was found that most of the parents felt that the child was comparatively

safer in their hands while going to school. Parents dropped the children on foot mostly in government school and when the school was near to home. In upper middle class and affluent children they were either dropped by one of the parents in their cars or they were dropped to school by chauffeur driven cars.

Table 2: Means of transport of children who were escorted to school by parents.

Means of Transport	Percentage
On Foot	35%
Parents' car	25%
chauffeur driven car	10%
two wheeler	30%

### Problems associated with private Vehicles

An analysis of private vehicles engaged in school transport revealed that they were riddled with the problems like overcrowding, old vehicles, no proper seating arrangement for children, and neglect of safety measures. There were drivers employed in these vehicles who were found to be careless, ignorant of traffic rules and even some of them were driving without licenses. These vehicles tended to overcrowding of children for financial gains.

### Problems with school buses

In our study we found that most of the school buses were not having their own school bus. In some instances buses didn't cover the routes to make sure that all the children could utilize its services. In many schools there was inadequate number of buses making multiple journeys and causing unwarranted delays for children to reach school or home.

### Problems with Personal Vehicles:

Personal vehicles were used in cases where there was no mode of transport provided by school and the distance of school from home was less. In many instances children used bicycles but in some cases children were using two wheelers despite their age being less than 18 years. They were riding bikes without licenses. This was the major cause of accidents involving school transport.

### Health Problems associated with School Transport:

The analysis of health problems associated with school transport revealed that many children suffered because of suboptimal levels of safety measures during school transport.

Table 3: Health Problems associated with school transport.

Health Problem	Cause	Percentage of affected children
Loss of appetite	Long Waiting Hours	20%
Tiredness	Poorly maintained Vehicles	20%
Recurrent febrile illness or respiratory tract infection.	Overcrowding	15%
Minor or major accident	Private Vehicles, Reckless driver traffic rules violations	5%

Overcrowding was one of the major drawbacks seen during school transport especially when private vehicles like auto rickshaws were utilized. 15% of the children were found to be suffering from repeated respiratory tract infections and febrile illnesses. Another problem seen especially with poorly maintained vehicles was body ache, shoulder pain and back pain in school children. 20% of the children reported loss of appetite. This was more commonly seen in children who had to wait for their school bus for hours daily. 5% children had some kind of accident minor or major while going to or coming back from school.

## DISCUSSION

School transport is one of the important aspects of schooling of children. While active school transport is associated with reduced risk of being overweight and obese it may be associated with various injuries during transport.<sup>[9]</sup> Passive transport to school may be associated with increased incidence of communicable diseases due to overcrowding, accidents and long waiting hours for children.<sup>[10]</sup>

There are very few studies dealing with school transport. Large studies which have been conducted were done in western world. There are not many studies conducted in India about this vital aspect of children's health and safety.<sup>[11]</sup>

Christine Voss et al conducted a study on the level of physical activity in the school going children. They found that those children who use public transport are likely to have better physical activity than those who use school bus. They concluded that Public transit use can contribute meaningfully toward daily PA. They further recommended that school policies that promote active school-travel should consider including public transit.<sup>[12]</sup>

Larouche R et al conducted a study of 315 children in Grades 4-6 who participated to Cycle 2 of the Canadian Assessment of Physical Literacy (CAPL) pilot testing. They compared the active and passive school transport. In their study they found that active commuters accumulated an average of 662 more steps per day, and their waist circumference was lower by an average of 3.1 cm. They suggested that active school transport may be a valid strategy to prevent childhood obesity. In our study we found that almost 87% students were using passive means of school transport (school bus, rickshaws, bike, parents' vehicles and chauffeur driven cars). That means these 83% children were prone for developing obesity.<sup>[13]</sup>

Mehdizadeh M et al conducted study to examine the role of parental risk judgments (i.e. risk perception and worry), transport safety attitudes, transport priorities and accident experiences on pupils' walking and mode choices on school trips. They found that that parents with high probability assessments of accidents and strong worry

regarding pupils' accident risk while walking were less likely to let their children walk to school. Parents with high safety knowledge were also more likely to allow their pupils to walk to school. Parents who prioritized convenience and accessibility in transport had a stronger tendency to choose motorized modes over walking modes. Also, parents who prioritized safety and security in transport were less likely to allow pupils to walk to school.<sup>[14]</sup> Our study found similar results ie parents who didn't allow their children despite having knowledge about positive effects of physical activity were concerned more about the safety of their children than anything else.

Our study found that there was an increased risk of recurrent respiratory tract infections and febrile illnesses in children using public transport for going to school. Many studies have similar findings. Harrison LH et al have investigated and published an interesting case of a cluster of meningococcal disease on a school bus following epidemic influenza.<sup>[15]</sup>

## CONCLUSION

Though one of the important component of schooling, school transport appears to be somewhat neglected by parents, school authorities or even government bodies. There are growing yet limited number of studies on health problems associated with school transport. Our study was conducted to address this particular issue in Indian context.

### Recommendation:

- 1) School authorities should take care of transport of children.
- 2) Parents should not send the children in overcrowded, old and vehicles with no proper license
- 3) Appropriate government authorities should check transport vehicles at regular intervals to avoid accidents
- 4) Schools at busy roads should have road marks for slow speed and heavy vehicles should not be allowed to ply during school hours.
- 5) There should be regular information regarding various traffic rules and regulations to children as well as parents in order to make school transport a safe journey for school going children.

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