

# Emergency Tyre Puncture Assistant

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**Abstract:** As we all travel for office, school, college etc. We mostly prefer our own vehicle to maintain our social image and to save time. If we own any vehicle we can travel according to our time and convince, whenever we want, we can go out but what if while travelling our vehicle got punctured? What will you do? Do they get puncture service centers easily or found any difficulties? This survey-based paper showcases the point of view of people who own a vehicle and what they do when their vehicle got punctured. Based on review of people, we got from the survey we as a developer suggested a solution to overcome this puncture issue.

**Key words** – Puncture center, pressure

## I. INTRODUCTION

This survey showcases the problem faced by the people while travelling by their own vehicle, this paper focuses this issue because it is time revolving people are moving toward buying their own vehicles, in India at least one house owns one bike/car. And all family members use it on daily basis. As the use of the vehicle is more there are more chances of getting tyre punctured. From the survey we got to know that most people face difficulties when their vehicle gets punctured, most when they travel in the evening/midnight. Obviously, our roads are getting better day by day, but not permanent solution is present. Idea we proposed is to provide mobile app base solution, this app will help you to locate nearby puncture service center and the service center contact details so that they can come and fix the puncture whenever, wherever we need at any time.

## 2. Literature Survey

[1] This article is about Justdial, it is an Indian Information service and social networking company. It has search engine ability; like Google, Bing, etc. It provides local search related services to users across India through platforms as; website, Apps and over telephone. These services is aiming to make several daily tasks convenient actionable and available to the users. These services also contain tyre puncture related services.

[2] This invention relates to pneumatic tires proficient of running to a useful amount even when the tire is punctured, the tires having on their inner surface a puncture sealant, and to puncture sealants for use in the varnishes. The invention provides a puncture sealant appropriate for application to the internal surface of a pneumatic tire, containing a lubricant and an amide wax.

[3] In this article, idea of puncture proof tire is proposed this can give brief idea how this puncture proof tire will work. A puncture-proof vehicle tire mounted on a multi-part felly, wherein the tire foot and the tread are connected by cushioning axial and radial reinforcing parts, formed by axial cut-outs which are staggered in relation to one another and are optionally subdivided by crosspieces.

[4] This article is related puncture sealing tire, in which it says a puncture-sealing pneumatic tire has a soft, vulcanized inner layer consisting of cis-polyisoprene rubber and/or natural rubber. The inner layer is preferably coated with a polyolefin polymer that flows into punctures at operating temperatures and said polyolefin polymer adheres to the inner layer by means of surface tension alone.

[5] This article shows container for sealing liquid for repairing inflatable article, in particular tyres, and repair kit featuring such a container. A container for sealing liquid for repairing inflatable articles, in particular, tyres, has a vessel having an opening; and a valve device fitted to the opening and having an inlet connectable to a compressed-air feed line, and an outlet for dispensing the sealing liquid; the valve device has a slide movable, in response to pressurization of the feed line, from a closed position closing the valve device and wherein the inlet and outlet are isolated from the inside of the container, to an open position wherein the inlet and outlet communicate with the inside of the container.

[6] In this paper it focuses on A kit for repairing puncture holes in a tubeless tire; the kit including an assortment of different diameter sized plugs, contained in a box, for selection of a plug matching a puncture hole size, each plug including a hollow screw of resilient rubber, so that, while being screwed into the puncture hole, a liquid rubber is wrung out therefrom, through side holes in the screw, in order to form an air-tight bond between the screw and the puncture hole.

[7] This article shows a tire puncture repair system includes an implement for forming a repair plug and inserting same into a tire casing to seal a puncture wound. The implement includes an insertion needle having a hook adjacent its free end and a gaff retractable away from the needle. To form a plug, an elastic loop constructed of an endless strand of non-circular transverse cross-

## 3. Data collection

To get the latest data and to suggest a fresh idea the dataset has been collected by conducting a survey which help us to get the real time data from we got the right information about all the attributes presented in the survey form. The form consists of various attributes and suggestion box for the people if they have any according to their need. The survey is been responded by more than 136 people according to the issues they experienced.

### 3.1 Dataset attributes

Dataset consist of attributes which are (city, age, vehicle type, travelling distance, type of tyre, repairing charges etc.)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Timestamp	City	Age	Do you use	Which type of vehic	How much do you	Which type of tyre c	How frequ	In which area do you face	Wheneve	Do you carry	How much do	While travelling at ni	Do you kn If y
2	2019/02/1	Pune	19-25	Yes	Two-wheeler	More than 50 Km	Tubeless tyre	When you u	On the high-way	No	No	40-60Rs.	Drop your vehicle and search for th	
3	2019/02/1	Dhule	26-30	Yes	Two-wheeler	20 - 30 Km	Tubed tyre	Once in a ye	Rural	Sometime	No	40-60Rs.	Toe your vehicle	
4	2019/02/1	Pune	19-25	Yes	Two-wheeler	More than 50 Km	Tubeless tyre	Once in a ye	Urban	Sometime	No	70-80Rs.	Drop your vehicle and search for th	
5	2019/02/1	Mumbai	19-25	Yes	Two-wheeler	10 - 25 Km	Tubed tyre	None of the	Rural	Sometime	No	More than 100	Drop your vehicle and search for th	
6	2019/02/1	Pune	19-25	Yes	Two-wheeler	25 - 50 Km	Tubeless tyre	Once in a ye	All of the above	Sometime	No	60-100Rs.	Toe your vehicle	
7	2019/02/1	Pune	19-25	Yes	Two-wheeler	5 - 10 Km	Tubed tyre	Twice a mo	Rural	Yes	Yes	More than 100	Drop your vehicle and search for th	
8	2019/02/1	Pune	19-25	Yes	Four-wheeler	25 - 50 Km	Tubeless tyre	Once in a ye	Rural	Yes	No	60-100Rs.	Toe your vehicle	
9	2019/02/1	Jammu	19-25	Yes	Two-wheeler	5 - 10 Km	Tubed tyre	Once in a ye	Rural	Yes	No	40-60Rs.	Drop your vehicle and search for th	
10	2019/02/1	Pune	19-25	Yes	Two-wheeler	More than 50 Km	Tubeless tyre	Once in a ye	Urban	Sometime	No	60-100Rs.	Drop your vehicle and search for th	
11	2019/02/2	Pune	19-25	Yes	Two-wheeler	More than 100 Km	Tubeless tyre	Once in a ye	Urban	Sometime	No	60 - 100 Rs.	Drop your vehicle an	No
12	2019/02/2	Pune	19-25	Yes	Two-wheeler	10 - 30 Km	Tubed tyre	Once in a ye	Urban;All of the above	Sometime	No	10 - 30 Rs.	Drop your vehicle an	No
13	2019/02/2	Aurangab	19-25	Yes	Two-wheeler;Four-	50 - 100 Km	Tubed tyre;Tubeles	Twice a mo	Urban;Rural;On the high-	Sometime	No	40 - 60 Rs.	Wait till the morning	No
14	2019/02/2	Pune	31-40	Yes	Two-wheeler	10 - 30 Km	Tubeless tyre	Once in a ye	All of the above	Sometime	No	60 - 100 Rs.	Drop your vehicle an	No
15	2019/02/2	Pune	19-25	Yes	Two-wheeler	50 - 100 Km	Tubeless tyre	When you u	Rural	Sometime	No	40 - 60 Rs.	Drop your vehicle an	No
16	2019/02/2	Mumbai	19-25	No	Two-wheeler	10 - 30 Km	Tubed tyre;Tubeles	Once a wee	All of the above	No	Yes	More than 100	Drop your vehicle an	No
17	2019/02/2	Mumbai	19-25	Yes	Two-wheeler	30 - 50 Km	Tubeless tyre	When you u	Urban;Rural	Sometime	No	40 - 60 Rs.	Toe your vehicle	Yes
18	2019/02/2	Pune	19-25	Yes	Two-wheeler	10 - 30 Km	Tubeless tyre	When you u	Rural	Sometime	No	40 - 60 Rs.	Drop your vehicle an	No
19	2019/02/2	Khetia	41-50	Yes	Four-wheeler	50 - 100 Km	Tubed tyre	When you u	All of the above	Sometime	Yes	60 - 100 Rs.	Drop your vehicle an	Yes
20	2019/02/2	Mumbai	41-50	No	Two-wheeler;Four-	More than 100 Km	Tubed tyre;Tubeles	Once a wee	Urban;Rural;On the high-	Yes	Yes	30 - 40 Rs.;40 -	Toe your vehicle	Yes
21	2019/02/2	Mumbai	19-25	Yes	Two-wheeler;Four-	More than 100 Km	Tubeless tyre	None of the	All of the above	No	Yes	More than 100	Toe your vehicle	No
22	2019/02/2	Khetia	19-25	No	Other	More than 100 Km	Tubed tyre	Once a wee	Urban	Yes	No	30 - 40 Rs.	Drop your vehicle an	No
23	2019/02/2	Pune	19-25	No	Two-wheeler;Four-	More than 100 Km	Tubed tyre	Once in a ye	Urban	No	No	60 - 100 Rs.	Drop your vehicle an	No

Fig 1. Dataset

### 4.Data Visualization

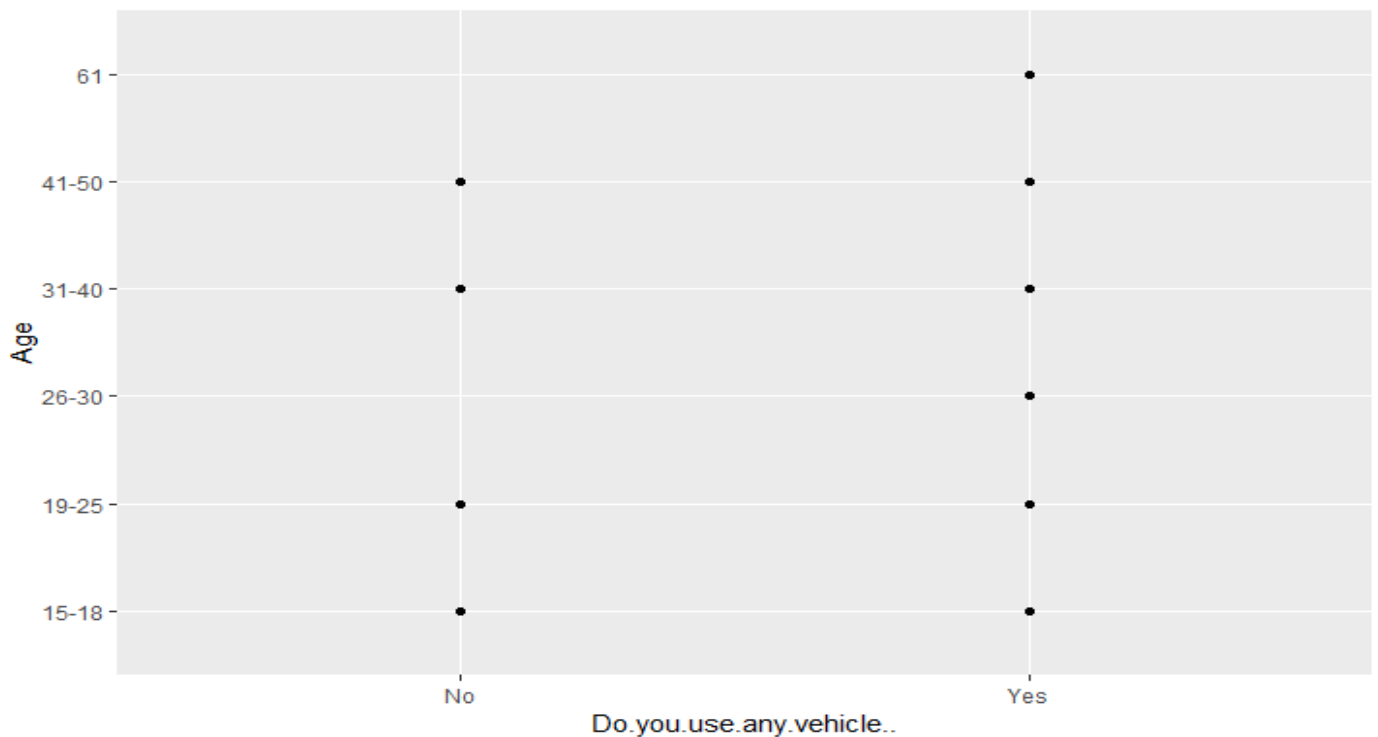
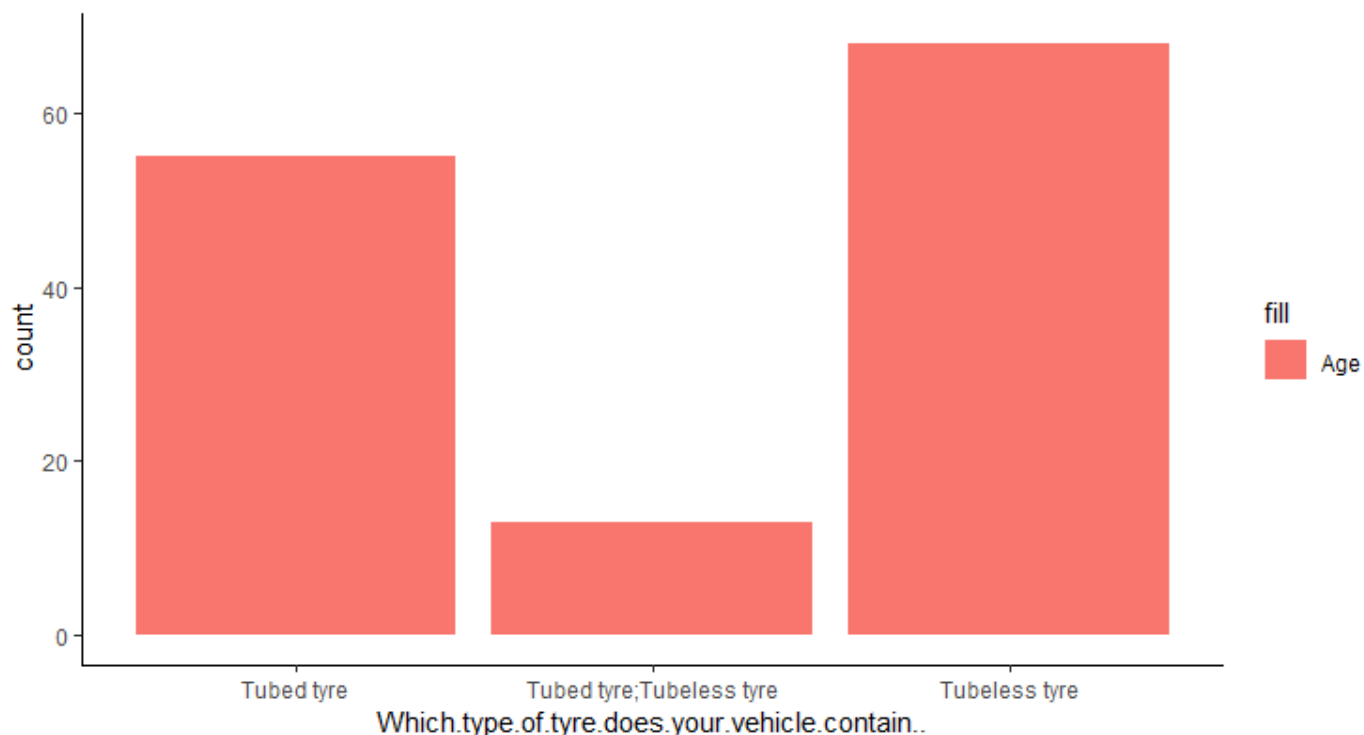
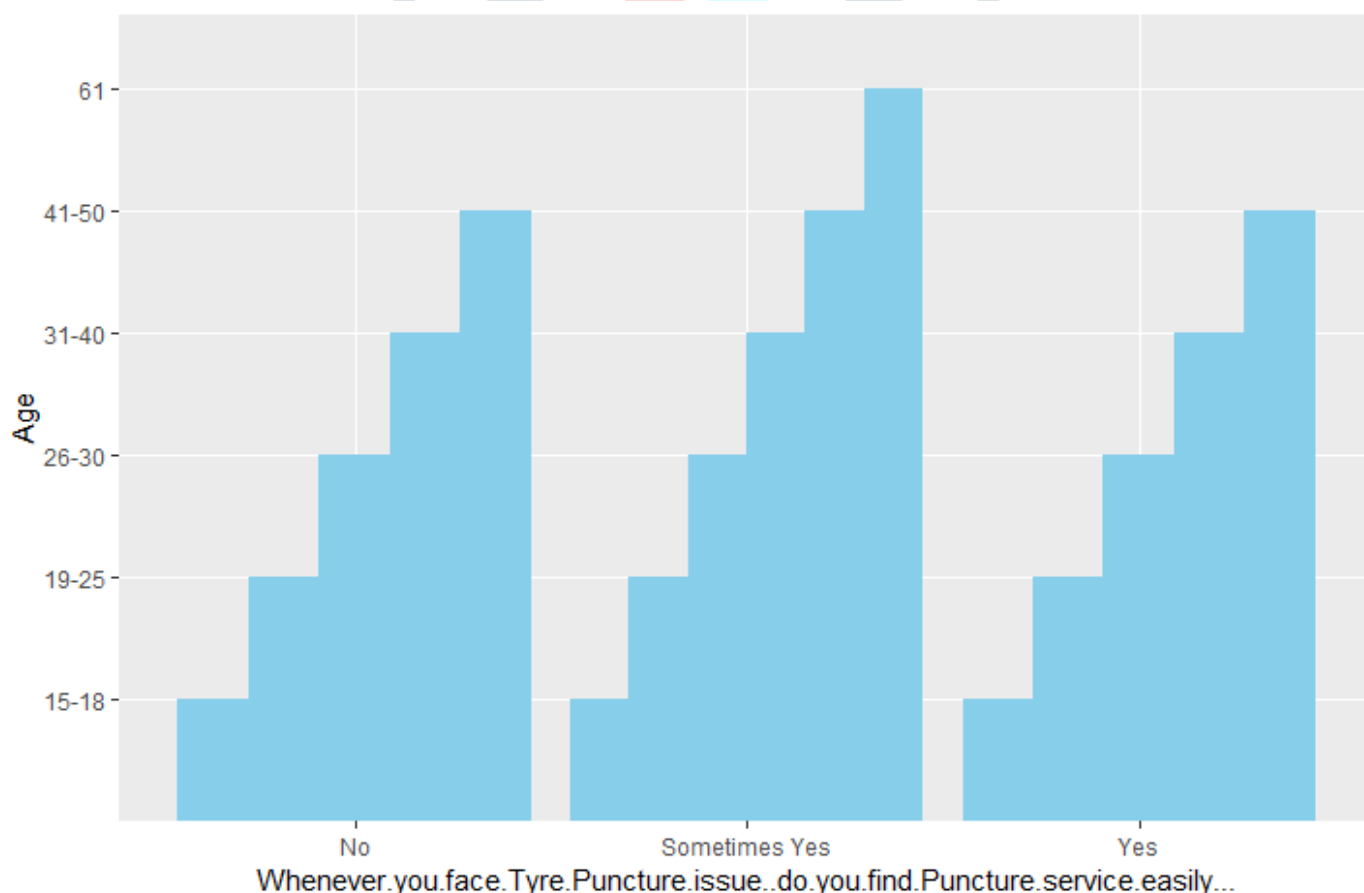


Fig 2. The above scatter plot shows the response of the people and their age limits. In which the count on the y- axis gives the number of people responded according to their age as yes and no which is plotted on x-axis.

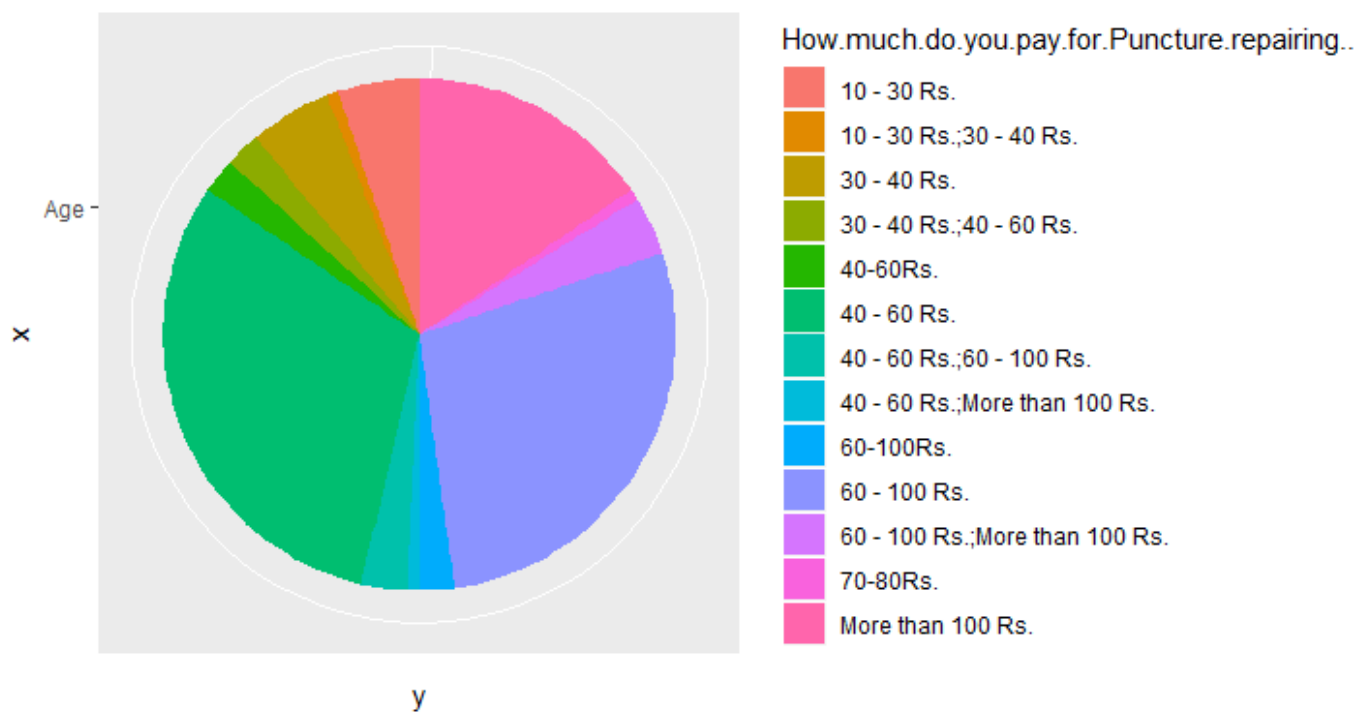


**Fig 3.Types of tyre used in vehicle by the people**

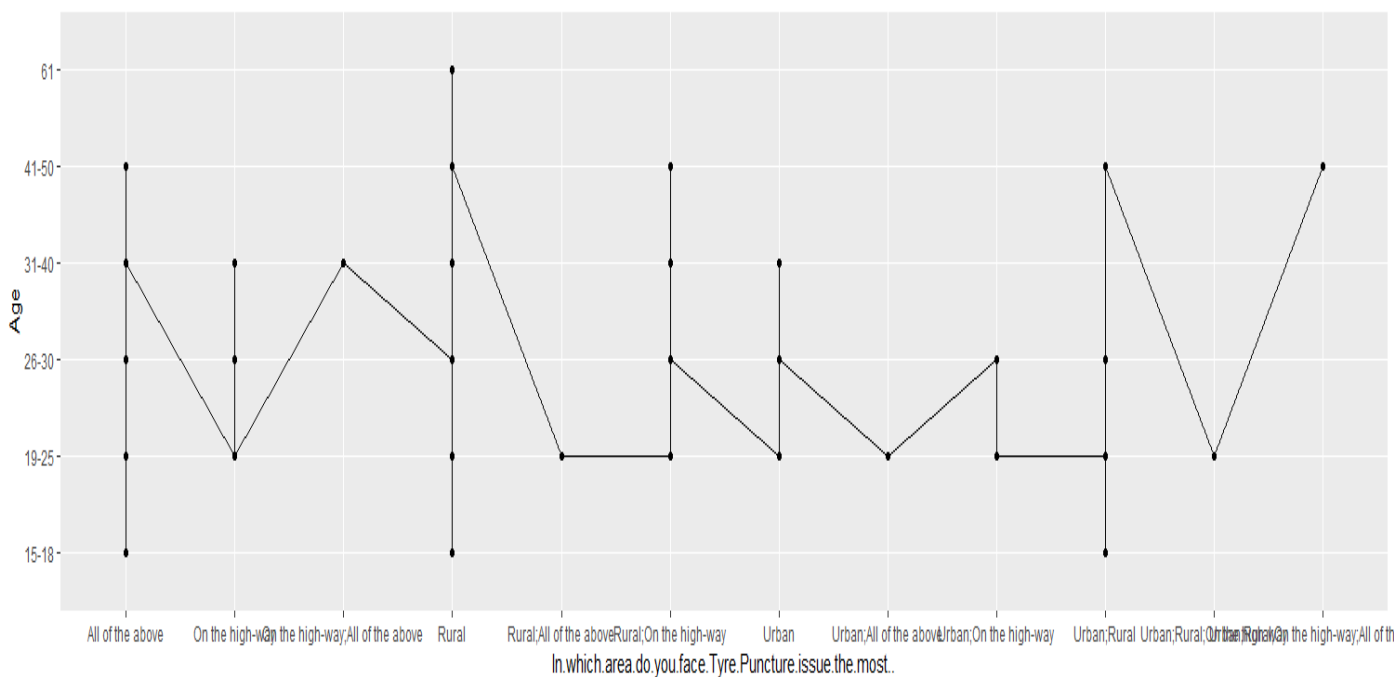
The above grouping bar shows us the number of people who are using the different types of tyre.



**Fig 4.**The X-axis on the above histogram is showing us that whenever the person got the puncture in the tyre of the vehicle does they get its repairing service easily and the Y-axis is showing the age group of the person.



**Fig 5.** The above pie chart is showing the age group of the people pay the amount for repairing their vehicle’s tyre puncture.



**Fig 6.** The figure shows the age group how has responded for the conducted in which area do the person face the tyre puncture problem the most.

### 5. Observation.

We observed from the survey that people face puncture issue mostly travelling in the evening/midnight. And traveling for a long distance in both urban areas and rural areas. Its difficult to find puncture service center mostly at midnight or in the rural areas. If luckily, we found any puncture repairing service they demand for high amount.

### 6. Proposed System.

As we all know India is developing country, everyday new construction work is going on the roads, roads are dig for the making all the cables underground, plumbing pipes are fixed underground etc. Due to such roads people face vehicle puncture issue while driving in urban areas, rural areas and on the highways, and doesn't get puncture service in nearby place, or they must wait till the morning to shops to open for the puncture repair if they are travelling in the night. This application will give people a platform from where user can view the near-by puncture service centers and can contact them via this application. User will get 24\*7 service if they contact the registered PUC center via this application. App which will consist of: -

- Puncture service centres list area vice
- All centre registered on this application will provide 24\*7 services to customers.
- User can easily access this application from anywhere, internet connectivity is required to use this application.
- Users don't have to pay anything to use this application.
- This puncture service application only required user's geographical location to provide appropriate results.
- All the registered puncture service centres will get more customers.
- To register your puncture service centre on this application, you just need to pay small amount of 100Rs per year.
- If you want to buy any tool kit for emergency use, you can also buy using this app.

### 7. Conclusion

According to the data collected from the conducted survey its been observed that most of the population suffer from the issues as mention in the dataset which help us to provide a propose system to them which will help them to overcome the puncture issue. Another importance of the research is to provide a platform for the people from which they can easily find the puncture service centers nearby them, and all the PUC centers will provide 24\*7 services. PUC centers will never demand for high price or not going to charge high amount.

### 8. Reference

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