



An Investigation on Causes and Preventive Measures of Trespass Accidents and Suicides in Katpadi Railway Jurisdiction of Tamil Nadu, India

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Abstract: This study investigates the causes of passengers' fatality in railways by means of trespass accidents and suicides and to elicit the measures to prevent the death occurrences in Katpadi railway jurisdiction. This study consists of 385 respondents, who are the travelers in Katpadi jurisdiction which has 20 railway stations including Katpadi junction. Under probability sampling, survey method and stratified random sampling is used as the technique for collecting sample in the study area. It is found that 59 people died in railway accidents in the year 2014. It was also found that 30.9 % use foot board on train travel and 34.8 % of the respondents get down from the train before it stops in the railway station and 51.43 % from 385 respondents replied financial problem as the major reason for conduct of suicide and 49.87 % respondents said that family issues provoke the aggrieved person to commit suicide. It is recommended to create barricade like fences, cameras, anti-trespass panels and warning and prohibitive sign boards to prevent trespass. Proper counseling, discussion of problems with family and friends, avoiding the usage of alcohol and drugs, playing mind games like chess and doing meditation and yoga will diverting the mind from suicide intent.

Keywords: Causes and preventive measures; Katpadi railway jurisdiction; suicides; trespass accidents

I. Introduction

Railway transport is considering the safest and comfortable transport with cost effective to all the people for more than one and half centuries, it is the fourth largest railway network system in the world next to United States, China and Russia. Despite of its notable service, it faces many difficulties to protect the people from railway collision and suicide. The national transportation safety board of India reported on December 01, 2014 that, the number of deaths in railways due to trespass accidents and suicides from January, 2014 till October, 2014 were 18, 735. The reasons and causes that influence the trespass and suicide deaths are still not properly sorted out by the railways, though there are models developed by researchers to a particular region, which do not suit to regions dissimilar to the zone where such models are implemented. This investigation elucidates the causes and preventive measures of railway trespass accidents and suicides in Katpadi railway jurisdiction of Tamil Nadu, India.

II. Review of Literature

Many researchers throughout the world assign study to find out the occurrence of accidents, which results in formation of models to find out the cause of incident [1]. The literature on railway trespassing and pedestrians accident remains scarce when compared to the domain of railway suicides [2]. Researches were undergone on prevention of railway trespass accidents [3], which came out with models to provide a built-in view of different aim and steps in the process of trespass accidents and the related preventative measures for such accidents as well. Reference [4] said that many investigations undergone for incident and accident found the human element as major contributing factor. They also quoted that seventy percent of the accidents occur due to faulty activities of humans. Humans, especially residents near railway tracks are frequently crossing railways without suicidal intention, rather carelessness and unconsciousness, which leads to accident. People use railways for other purposes such as taking a walk in the tracks, consuming liquors, seeking risk by playing on the tracks, or even committing criminal activities such as metal theft and fare evasion. The Designing of protection from trespass and suicidal accidents must be in a way which should make the attempters to not proceed further and the content of awareness should not pave the way to seek risk. Another possible cause for accident is unintentional trespassing. It is a serious loss of human control [5], due to unconsciousness and carelessness, the human will not be aware of happenings in the environment due to lack of consciousness or concentration to any factor.

Several researchers cited that the railway officials face problems with trespass fallacy [6]. Especially Railway Police are taking crucial steps to prevent deaths and injuries occurring in rail tracks. The inspector of police in the study area said that the people nowadays are clever is mishandling the rules and regulations of any departments. College students travelling in trains use doorway travel even if there is space inside the train. Passengers who are hanging themselves outside the train getting hit on the overhead equipment mast and lead to major injury or even death as well. Reference [7] said that some people choose unsafe travel by sitting near the door. Subsequent to trespass accident, there is another major type of accident which an individual intentionally plan and commit death called as suicide, which is a kind of psychological accident. It was mentioned by the researchers that, in Indian railways, till now there is no organized and incorporated view of preventive steps or measures that support decision about prevention of suicides [8]. Literatures revealed the types and factors pertained to cause of suicides attempts. Especially on railway suicides, the efficient measures of railways so far taken were proposed with evidences like developing awareness from the suicidal problem outside psychological care [9], having proper fence to protect people particularly in densely populated areas [10]. There are a few researches which argues that 80 % and more suicidal attempters have made serious attempt but hindered and living their life [11].

As far as researches undergone, it was found that there is no any standardized system, steps and events that supports decision and reasoning integrated to measure the prevention of suicide under railway undertakings. The models for suicide prevention were proposed by reference [12], which is so-called suicidal model that describes the analysis and prevention of suicide. This model has a process that starts from thoughts to suicide and ends with suicidal decision and act out. The model consists of four steps associated to measures such as influence the perceive attractiveness and rail traffic availability as a mean, influence the accessibility and potential of accident and influence the consequence of accidents. The above literatures supported the researcher to find out the gap to be filled through current investigation, which paved the way to define the research objective.

III. Objective of the study

The core objective of this study is to find out the causes of passengers fatality in railways by means of trespass accidents and suicides and to elicit the measures to prevent the death occurrences in the study area.

IV. Research Methodology

The population of this study is the travelers in Katpadi jurisdiction of Tamil Nadu, India, which has 20 railway stations including Katpadi junction. The population is considered as infinite because it is not possible to trace the number of people travel in Katpadi jurisdiction daily. Under probability sampling, survey method and stratified random sampling is used as the technique for collecting sample in the study area. The sample size is 385, which was determined using the formula derived by *Krejcie and Morgan (1970)*. This study use descriptive research design to describe the characteristics of the respondents pertains to accidental deaths. Statistical tools such as cross tabulation and Chi – Square test are used to analyze data. Primary and secondary data are used in this study; primary data is collected through hybrids of questionnaire, interview and schedule and secondary data is collected from: (a) Printed sources: Government reports, books, newspapers and magazines, (b) Electronic sources: e - journals, e - books, e – papers and websites.

V. Results and Discussions

A. Demographic profile

This study took core factors to include in demographic profile such as age, gender and occupation, which found that 66.2 % (255 from 385 respondents) of the respondents are male and 33.8 % are female. Many female are hesitant to answer the questions though the importance of the study was explained and hence the number of male is higher. This study contains maximum number of respondents (29.7 %; 114 from 385 respondents) under the age group of 26-35 and 23.6 % of respondents under the age group of 19-25. The respondents under the age group of 50 and above are 20.5 %, age groups 36-50 contain 18.4 % and 7.8 % respondents are below 18 years of age. The government and private employed people are found the maximum number of respondents (68.2 %) among 220 respondents, and self employed are 31.8 %. The remaining 109 respondents were found as students and 56 respondents as unemployed, who does not fall into the employment category. The unemployed people include job seekers and retired.

B. Railway death tolls in the study area

From this study, it is found that 59 people died in railway accidents in the year 2014, out of which, 39 trespassers died due to trespass accident, 10 passengers due to natural death, five passengers slipped/ fallen down from the running train, four trespassers due to suicide and one passenger got electrocuted.

Katpadi junction is recorded with maximum railway deaths in the year 2014 (14 out of 59) in the katpadi jurisdiction. It is also found that more death tolls are recorded in the year 2014, where the death toll is 44 in the year 2012 and 58 in the year 2013 respectively.

Trespass accidents are found as maximum cause death in railways and hence the factors influencing such cause are studied.

C. Factors influencing trespass accident

To identify the reasons for trespass accident, the influencing factors are studied by the researcher. Table I portrays the factors influencing trespass accident considered for the study.

Table I Factors influencing trespass accident

Factors influencing trespass accidents	Yes		No	
	f	%	f	%
Existence of rail track near residence	129	33.5	256	66.5
Respondents come across Level Crossing gate to reach railway station	175	45.5	210	54.5
Carrying heavy luggage in the train	86	22.3	299	77.7
Usage of footboard on train travel	119	30.9	266	69.1
Respondents getting down from running train	134	34.8	251	65.2

Source: Primary data; f – frequency, % - percent; Note: frequency of each factor is out of 385 respondents

From the Table I, it is found that 33.5 % from 385 respondents resides near railways, 45.5 % come across level crossing gate to reach the railway station, 22.3 % carry heavy luggage in the train, 30.9 % use foot board on train travel and 34.8 % of the respondents get down from the train before it stops in the railway station. These results build a trauma, which educe the negligence of the people, who are not following the rules framed by the railways to safeguard the travellers. This may lead to trespass accident. Or slip/ fall down. The above factors were analysed using Pearson’s chi-square test to know the association with the age. The result is tabulated in Table II.

Table II Chi-Square test for Factors influencing trespass accident and age group

Age group cross tabulated and analysed with these factors using Pearson Chi-Square	Value	df	Asymp. Sig. (2-sided)
Existence of rail track near residence	71.428	4	0.000
Respondents come across Level Crossing gate to reach railway station	11.370	4	0.023
Carrying heavy luggage in the train	22.919	4	0.000
Usage of footboard on train travel	47.251	4	0.000
Respondents getting down from running train	19.273	4	0.001

Source: Primary data compilation

In the Table II, all the above factors are less than p value (p = 0.05), hence the null hypothesis is rejected and it is inferred that there is an association with factors influencing trespass accident and age group of the respondents.

D. Possibilities to avert trespass behaviour

As far as trespass accident is concerned, the prevention or aversion of trespass behaviour in the study area consists of six measures such as (i) campaigns to raise awareness and prevent trespass, (ii) installation of warning and prohibitive signs, (iii) placing posters, (iv) providing education about accidental deaths, (v) installing anti-trespass panels and (vi) installing fences near residential areas to restrict people from rail track access.

E. Reasons for conduct of suicide

Suicide is found as one of the major unidentified phenomenon. From this study, the reasons for suicide cited by the respondents are financial problem, family issues, dowry, continuous failures in life, unbearable emotional or physical pain and love failure. More than half of the respondents (51.43 % from 385 respondents) replied financial problem as the major reason for conduct of suicide and 49.87 % respondents said that family issues provoke the aggrieved person to commit suicide. There are other reasons such as severe depression, bipolar disorder (person's mood to swing from feeling very high and happy to feeling very low), psychotic (inner voices often command self-destruction for unintelligible reasons), Schizophrenia (seeing or hearing things that are not real), borderline personality disorder (unstable emotions, disturbed thinking patterns, impulsive behaviour and intense but unstable relationships with other people), anorexia nervosa (eating disorder), homeless, people who feel guilty for committing mistake. These terms are referred by a psychiatrist, who is one among the respondents.

F. Possibilities suggested by the respondents to prevent suicide

The respondents are asked to suggest the possibilities of preventing suicide. As far as psychological factors are concerned, it is not possible for researchers to find a model to prevent suicides [13] because, it is not viable to predict the suicide planned by a person because the act of suicide is sudden and it happens in less than a second. This study evokes the possibilities to prevent suicides, which found that counselling is responded by 63.1 % of the respondents and rank as one, followed by discussion with friends and family members by 49.6 % and 44.7 %, avoiding drugs and alcohol as forth rank with 40.3 % and other suggestions replied by 2.1 % such as playing mind games like chess, diverting the mind by doing meditation and yoga.

Suicide is found as one of the major unidentified phenomenon. From this study, the reasons for suicide cited by the respondents are financial problem, family issues, dowry, continuous failures in life, unbearable emotional or physical pain and love failure. Hoardings with images of deceased by means of suicide and trespass accidents should be displayed at the platform entrances of the railway stations which will educate and alert the people not to attempt suicide or use rail track. It is recommended to install warning and prohibitive sign boards in 14 spots to control trespass behaviour. The places that require installations are Katpadi Railway Junction main entrance, east end, west end and in Sevur railway gate, Thiruvallur railway station, Mukundarayapuram railway station, Walajah Road railway station east and west end, Thalanga railway station east end and west end, Sholinghur Road railway station east and west end, Anwarthikhanpet railway station and four sign boards towards Vellore Cantonment railway station.

VI. Conclusion

The railway undertakings should take severe action on trespass behaviour by strengthening fine and imprisonment, so that the death which occurs due to trespassing and suicides can be drastically controlled [14]. It is also the duty of the stakeholders such as police, media, public and private institutions and voluntary organizations should support railway undertakings to protect the passengers and provide them a safe and sophisticated travel.

VII. Scope for further research

This study is limited to 20 railway stations including Katpadi junction. This study can be further extended to other railway jurisdictions across the country, which will be useful for the people, who are concerned about safety and awareness of trespass accidents and suicidal deaths.

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