# A Thematic Analysis of Traffic Rule Violations in India: Insights from Government Data and Academic Literature

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**Abstract:** Road Accidents causes major death around the world; India is also vulnerable to this highly critical issue. Research studies indicate that it will pose a serious public health concern around the world in the upcoming centuries. Researchers outlined varied social-legal causes behind it. Several significant behavioural and strategic factors contribute to traffic violations in India as well, including over-speeding, drunk-driving, jumping red light, driving on wrong side, use of mobile phones while driving etc. Additionally, inadequate enforcement mechanisms and legal loopholes further worsen the problem. This study examines the behavioural, cultural and other determining elements contributing to road traffic violations in India. This study employs Brown and Clarke's thematic analysis framework, to identify and compare recurring themes drawing on government statistics particularly MoRTH road accident reports and existing academic literature on road safety and violations. This study highlights the comparative gaps between policy intent and ground realities concerning the rising incidents of road traffic violations. The research findings provide an in-depth understanding of the major causes behind this sensitive issue; furthermore, they provide useful guidance to law enforcement agencies and other authorities for implementing methods to reduce road accidents rates across the country. This research proposes practical, socially-grounded and holistic policy reforms to address these issues effectively. It is evident through this research that there is need to carry out research in the development of community centred approaches and awareness programmes to promote road safety measures.

**Keywords:** Road Accidents: Traffic Violations; Behavioural Factors; Thematic and Comparative Analysis; Policy Reforms.

## INTRODUCTION

Road traffic violations are a serious global social issue with far-reaching consequences. As per recent reports and many studies, road accidents are increasing in a massive way, as in 2019 India recorded 4.37 lakh road accidents, including 1.54 lakh fatal and 4.39 lakh non-fatal cases resulting in major injuries. Two-wheelers were the deadliest, causing 58,747 deaths (38%). They were followed by trucks/lorries (22,637; 14.6%), cars (21,196; 13.7%), and buses (9,192; 5.9%). (Athiappan et al., 2022) Along with that as per MoRTH 2023 report India recorded 4,80,583 road accidents, including 1,60,509 fatal cases (33.4%) and 2,92,424 non-fatal accidents (60.8%) out of which 1,58,576 (33.0%) were grievous and 1,33,848 (27.9%) were minor injuries. Beyond these fatality figures many studies point out, its impact on the global economic burden and is estimated at nearly 3% of the GDP (Global Gross Domestic Product). Athiappan et al. (2022). Shantajit et al. (2018) pointed out that underdeveloped and developing countries, comprising 82% of the global population, most affected. From aforesaid statistics in both academics and government reports, it is evident that current road safety measures are failing to effectively prevent accidents in India as well. According to the MoRTH Report (2023), road traffic accident prevention is multifaceted and built on the four E's—Education, Engineering of roads and vehicles, Enforcement, and Emergency Care. However, other studies highlight the need for targeted road safety education, especially for individuals with lower educational backgrounds. (Fayaz et al., 2024). Government reports, such as those published by MoRTH, primarily pinpoints macro-level and data-driven descriptive statistics like enforcement initiatives and infrastructural factors causing road accidents. Conversely, academic research gives a detailed examination of micro-scale phenomena, such as behavioural, moral disengagement and contextual analysis to get deeper insights about enforcement challenges, public risk perceptions and even educational disparities.

Many studies examined the relation of traffic road violations to human behaviour and error for instance Basiyd-Fellahi, H., Delhomme, P., & Cestac, J. (2025) explored the link between traffic violations and moral disengagement. Forward, S. E. (2006) demonstrates the varied aspects of human failures particularly 'deliberate violations, unintentional errors and lapses of memory'. Understanding these can help predict crashes and is eventually most prevalent focus of research in road safety. Many studies articulated the multifarious causes of road accidents like weather conditions, defective motor vehicles, poor road conditions, in India, Shantajit et al. (2018) identified the fault of driver (77.1%) as the leading cause of road traffic accidents. Together, these divergences reveal the need for integrating empirical evidence from both sources to achieve a more comprehensive understanding of road safety issues in India. This study explores and highlights the comparative gaps between strategic intent and practical realities of road traffic violations in India. The study is qualitative method based on Braun and Clarke thematic analysis framework to identify and interpret the patterns within data. Ahmed et al. (2025) accentuated iterative and reflexive nature of the six-phase Braun and Clarke thematic analysis that includes (1) familiarization with data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the report and this method is being used in this paper.

Based on these perspectives, many other studies and scholars emphasized the importance of thematic analysis to be a reflective and genuine process and not a mechanical procedure without any interpretative meanings. Braun and Clarke (2006) highlights how researchers through thematic analysis can make basic structure(themes) for arranging and presenting the dataset in detailed and meaningful form. This view is further supported by Guest, MacQueen, and Namey (2012) in their study, who pointed out that thematic analysis goes beyond counting words or phrases, focusing instead on identifying and describing both explicit and implicit ideas within the data. Based on this methodological approach, the study here explores the existing gap with deeper interpretative understanding to ultimately identify the implications for policy and practice.

# THEORETICAL FRAMEWORKS

There are several theories in sociology, psychology and criminology that give comprehensive explanations for traffic violations in general. Theories like Deterrence Theory (Beccaria, 1764; Gibbs, 1975), Social Learning Theory (Bandura, 1977), and Routine Activity Theory (Cohen & Felson, 1979), Risk Compensation Theory (Wilde, 1982), Theory of Planned Behaviour (Ajzen, 1991) are prominent among them. Some of these theories highlight the individual behaviour as a reason while other explain about the structural and systematic barriers analysis as far as traffic rule violations are concerned. The theory of Planned behaviour is being selected here and contextualized in relation to the study objectives of this paper.

**Theory of Planned Behaviour (Ajzen, 1991)**
In the study by Castanier, C., Deroche, T., & Woodman, T. (2013) pointed out the implications of this theory of planned behaviour so as to understand traffic violations particularly in predicting drivers' intentions and behaviour. As per this theory traffic violations happens due to person's own behaviour and intentions. These intentions are shaped by three primary parameters, 1. Attitudes 2. Subjective norms and 3. Perceived behavioural control; these together lead to the development of individual behavioural actions. Attitudes are about their own belief whether to obey rules and if it is good or bad to break them. Similarly, subjective norms are their perceptions of primary relations approval (significant others approval) of accepting those rules. Lastly, the third parameter of perceived behavioural control means an individual's own perception of their capacity to follow and adhere to traffic rules here, shaped by their assessment of its impact and self-control they have on their own.

The following section outlines the specific problem that this research seeks to investigate.

# STATEMENT OF THE PROBLEM

Despite the yearly exercise of extensive reporting by MoRTH on planning, development and maintenance of roads and traffic rules to

address road safety based on Education, Engineering (both roads and vehicles), Enforcement and Emergency Care, significant gap remains in understanding deeper socio-cultural and behavioural factors behind increasing accident rates in India. Academic literatures addressing these issues on the other hand provides rich interpretative insights but often lacks direct alignment with official datasets. This differences in approaches of report-academic sources analysis limits a holistic understanding of traffic non-compliance in India. Therefore, the study attempts to compare and analyse both sources to identify convergences, divergences, and underlying thematic patterns.

# SIGNIFICANCE

This research brings practical, socially-grounded and comprehensive policy reform to address traffic violations issues more effectively. It is evident through this research that there is need to focus on very new integrated approach of road safety measures that build community- centred approaches and strategies that promote traffic rule compliance and road safety in India.

# REVIEW OF LITERATURE

This portion of the study highlights and reviews the past studies that focus on the varied aspects of traffic violation like the causes and safety measures etc. Different scholars have focused on the different aspects of traffic violations around the world, they have examined the aspects of it like drivers' personal characteristics, no street light, an unfit safety status of vehicle, (Zhang, G., Yau, K. K. W., & Chen, G. (2013). , Speeding, Drunk-driving, No-passing zone violations,( Yoh K., Okamoto, T., Inoi, H., & Doi, K. (2017). Following portion of the paper determines these aforesaid reviews in detail to find out the gap in the study.

**Rao (2013)** conducted a retrospective study done from the period 2013-2016 that provided a comprehensive analysis of road traffic safety management in India. His research findings highlighted overall systematic weaknesses that contributed to rising accidents in India. As per his study primary risk factors associated with increasing crash rates are human and environmental causes. His study also emphasized concerns about growing numbers of automobiles along with population growth in India. The research recommends a multidimensional approach including policy reforms, infrastructure improvement, technology integration, and public education to strengthen road safety management in India.

**K., Okamoto, T., Inoi, H., & Doi, K. (2017)** study compares the traffic violations and accidents of foreign drivers in Japan from different regions (East Asia, South East Asia, and North South America) of the world, the research findings show the analysis of the specific violations and accidents on the basis of nationality. Speeding, a poor sense of priority, drunk driving, and no-passing zone violations were considered to be the main causes of increasing traffic violations. Multiple-regression analysis statistical tool was used that revealed the corelation between traffic violations and accidents. In conclusion, the findings suggest that implementing safety interventions linked to region-specific driver characteristics can be effective in improving driver behaviour and reduce risks.

**George et al. (2020)** investigated a very deep concern factors of road violation in India, suggesting that the repeated and regular non-compliance can normalize rule-breaking behaviours, transforming and making them a socially tolerated norm, though bad. Researchers further suggest reassessing laws in place and getting away from just imposing penalties and taking more stringent action against the violators can make improvements. Pointing out the importance of behavioural insights and nudge-based interventions in public policy of many countries like Singapore's visual cues and Amsterdam's RCT's (Randomised control trial) to ensure cyclists adhere to traffic signals etc. and proposes for such interventions for improving traffic behaviour in India as well.

**Gupta, Goswami, and Kumar (2021)** study examined traffic violations through drivers' perspective and employed self-reported Driver Behaviour Questionnaire to analyse unexpected and hasty driving behaviour towards road safety in the Indian context. This study findings suggest DBQ to be the effective predictor and a strong psychometric tool to understand accident-related behaviour. The Exploratory Factor analysis of the survey identified three key factors

and personnel traits that are offence, fault, and ignorance to be the primary contributors towards this abrupt behaviour of the drivers. This research recommends licensing issuing authority and driving schools must be regulated more strongly and driver attitude and their perception of risk could be included in the trainings given to drivers. Researcher further suggest the investigation process should also explain the aberrant driving behaviours with specific personality traits. And recommends additional studies to be conducted on human behaviour interventions with use of qualitative methods such as focus group interviews to get deeper insights of behaviours, thoughts and motivations of the drivers.

From extensive literature review, it can be summarized that traffic violations are strongly shaped by behavioural, demographic, and other contextual factors. It also highlights the importance of understanding driver psychology and regional characteristics when designing effective road safety strategies. Both Indian and abroad based studies emphasize the need to integrate behavioural assessments such as driver behaviour questionnaire (DBQ), with policy reforms and more specialized trainings to drivers to reduce traffic violations. More studies needed to identify risk factors and persistent gaps, particularly more holistic and behaviour focussed approaches-based studies needed to reduce traffic violations and accidents. The present study addresses this gap by building on insights from past studies and proposing more effective and evidence-based road safety interventions.

In-line with earlier findings, this study explores varied aspects of traffic violations and seeks to answer following research questions and objectives.

# RESEARCH QUESTIONS

1. Where do MoRTH reports and academic literature converge (agree) and diverge (differ) in explaining the causes and patterns of traffic rule violations in India?

2. What gaps exist between road safety policies and the actual on-ground practices observed in empirical research and government findings?

3. How can community-centred and behaviour-based interventions be designed to reduce traffic violations and improve road safety outcomes in India?

# RESEARCH OBJECTIVES

1. To identify and categorize prevalent patterns of traffic-safety violations in India using themes emerging from MoRTH reports and academic studies.

2. To examine points of convergence (similar findings) and divergence (contrasting perspectives) between governmental data and academic research on traffic rule violations.

3. To interpret the discrepancies between traffic-safety policies and their ground-level implementation, highlighting key policy–practice gaps.

# RESEARCH METHODOLOGY

This study applied a qualitative research design and analysed data through Braun and Clarke's (2006) six-phase framework based thematic analysis to identify the regular patterns in traffic rule violations in India. In thematic analysis, patterns were developed directly through data in a bottom-up approach. (Sumit, 2024). Qualitative data analysis software Atlas.it version 25.0.0 was used for systematic coding, categorisation and theme development. Purposive sampling method was used for data collection. This study adopted the secondary sources of data, primarily taken from last ten years MoRTH (Ministry of Road Transport and Highways (2013-2024)). The main sources of data included official reports containing data on types, causes and patterns of traffic violation; and approximately forty academic national and international journal articles, conference papers and research studies focussing on Indian traffic violations (primarily from google scholar and ResearchGate search), socio-technical and behavioural causal factors, along with studies on safety measures were used. As earlier mentioned, this study employed Braun and Clarke thematic analysis method to examine patterns of traffic violations, below are given six-phase framework of coding and reporting used by the researcher-

1. Familiarisation with data- After deciding about the objectives of the study researcher reviewed all the aforementioned documents and then big documents like those of government reports (Ministry of Road Transport and Highways (Hereafter MoRTH) Reports) which were consists of 150-250 pages, were split into small pdf and sections, chapters of the report specifically addressing the required areas were taken and then all documents were imported into Atlas.it software. The total ten years of MoRTH Reports were selected for the study based on availability in the website though, 2014-2015 and 2021-2022 were excluded due some technical issues related to downloading, rest reports used for review are namely: 2012–2013, 2013–2014, 2015–2016, 2016–2017, 2017–2018, 2018–2019, 2019–2020, 2020–2021, 2022–2023, and 2023–2024.Academic literature published between 1999 and 2025 ( approx. last 25 years) were used for thematic analysis. Below Table 1 shows the list of years on which paper was published and number of articles under that year reviewed for analysis by the researcher.

**Table 1: Paper reviewed according to years**

| Years | Articles Reviewed |
|---|---|
| 1999 | 1 |
| 2005 | 1 |
| 2008 | 1 |
| 2009 | 1 |
| 2013 | 3 |
| 2014 | 3 |
| 2015 | 2 |
| 2016 | 4 |
| 2017 | 1 |
| 2018 | 1 |
| 2019 | 4 |
| 2020 | 5 |
| 2021 | 5 |
| 2022 | 3 |
| 2023 | 2 |
| 2025 | 3 |
| Total | 40 |

The study is based on two different time-frameworks MoRTH and Academic literature (both from national and international journals and periodicals), MoRTH reports from the last ten years were analysed to understand recent empirical trends in traffic rule violations and enforcement practices in India. In contrast, academic literature published between 1999 and 2025 was reviewed to provide a comprehensive theoretical and socio-legal context, allowing the study to trace the evolution of scholarly thought on traffic regulation, compliance behaviour, and road safety. So, the time span covered by the study provides for the two data sources which are from different as far as time span is considered yet they serve the complementary research objectives. Figure 1 shows screenshot of overview during familiarization stage when all documents were imported and were read to get in-depth understanding of the data.

# SAMPLE SELECTION FOR THEMATIC ANALYSIS

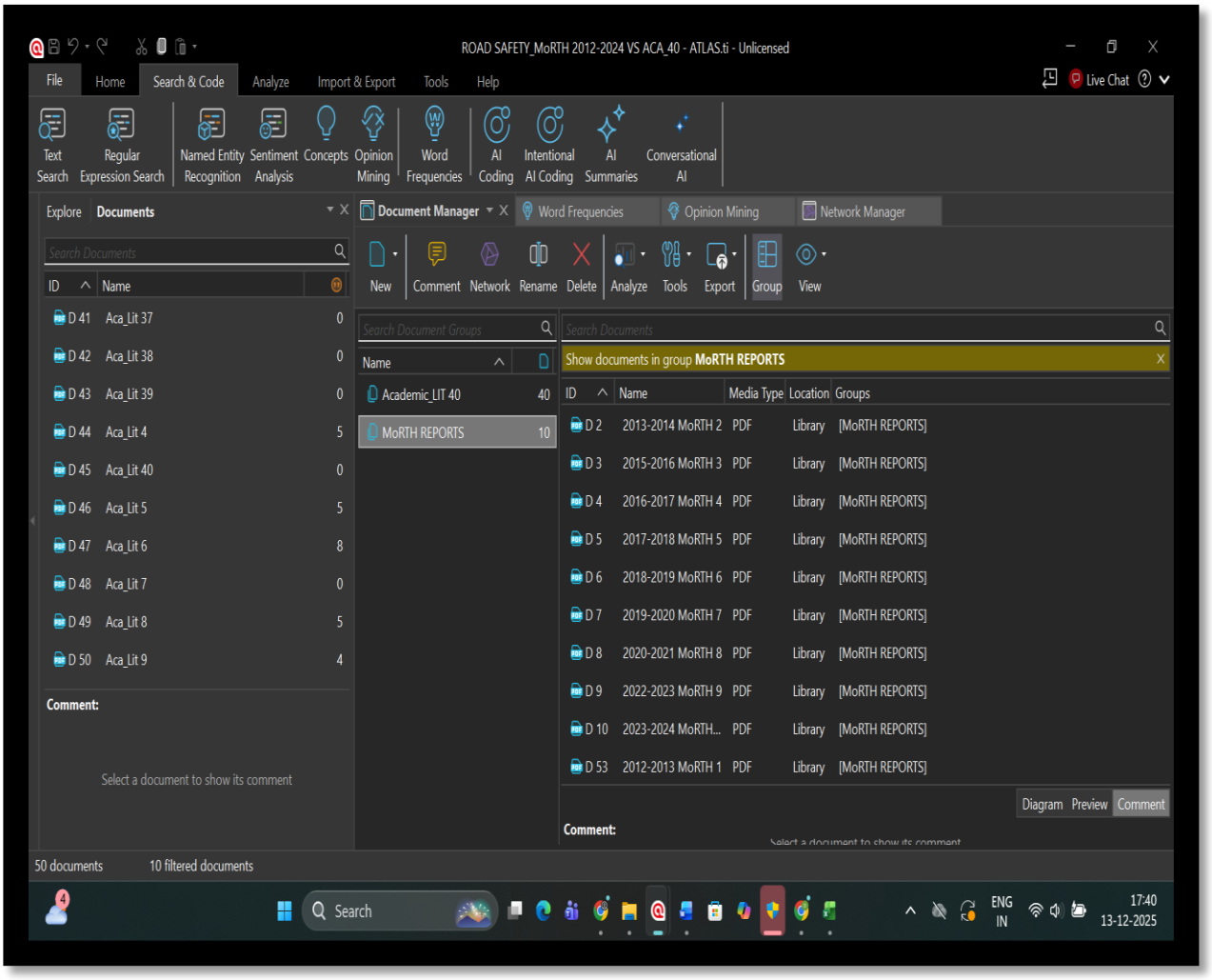
Since it was thematic analysis; the samples were purposely selected from esteemed sources 40 studies from academic research papers and 10 from MoRTH reports were chosen for analysis. Table-2 shows distribution of sources i.e N is equal to number of documents reviewed for thematic anlysis. n1 = 40 were n1=Studies from Academic Sources; n 2 = 10 n2=Studies from MoRTH Reports, further N=n1+n2 which is total number of documents reviewed N=50 (n1+n2=40+10=50).

**Table 2: Distribution of sources of data samples**

| N=n1+n2 | N=50 |
|---|---|
| n1 = 40 | n 2 = 10 |
| n1=Studies from Academic Sources | n2=Studies from MoRTH Reports |

After repeated readings of the government texts, sections of reports and academic papers, initial observations were formed and the researcher based on frequent mentions of keywords related to traffic violations and safety measures like speeding, drunk driving, road user, weak enforcement, etc. were noted in ‘memos’ within Atlas.ti.

**Figure 1:** Screenshot in ATLAS.ti showing Overview of MoRTH reports and academic literature imported and reviewed.

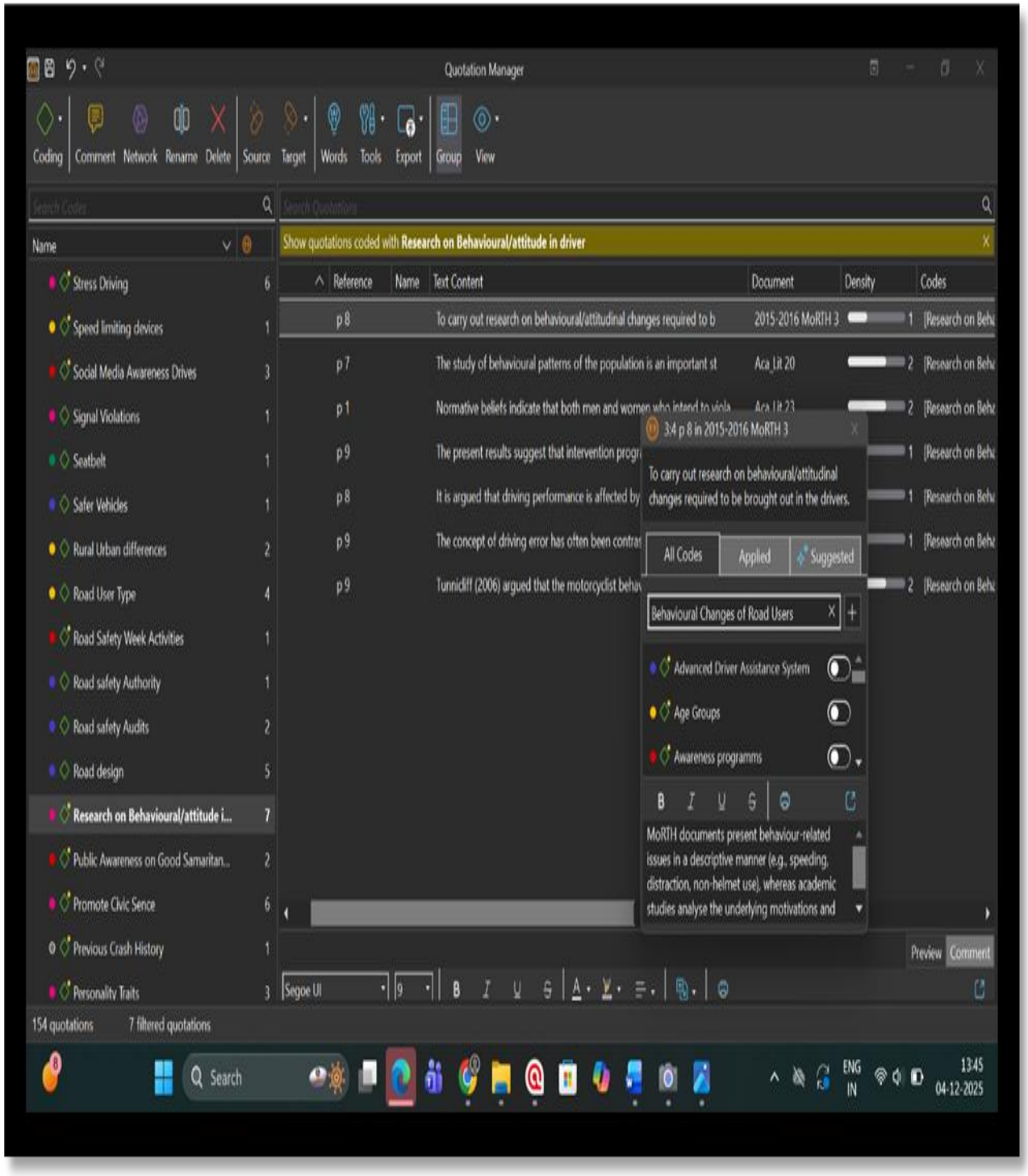



Source- Prepared by author on date 17/11/2025

2. Generating Initial Codes- In this phase large texts of the data were shorten and examined closely to assign meaningful labels called codes for grouping similar patterns, these codes served as foundation for developing broader categories and themes in the next stage. Over all 153 quotations were initially marked during coding as a relevant portion of the text (88 text segments from academic sources were quoted and 65 text segments from MoRTH policy documents were quoted) but after revising only 121 Quotations developed during coding were linked to themes. These quotations were used to form final 57 meaningful codes in Atlas.it. All the codes came from behavioural (Over speeding, helmet non-compliance, jumping a red light) institutional (awareness and educational measures), socio-demographic risk groups (Age groups, gender, road user types, rural-urban differences) and Road-user behavioural and human factors (Promote civic sense, stress driving) in the documents. These quotations served as evidence for the emerging patterns and allowed researcher to trace each code back to the original data source. A total of 80 codes were formed first but later after merging repeated ones, finally 57 initial codes were generated. Inside this paper few representative examples are given, while the complete code list is included in the appendix.

Figure-2 displays the quotation manager in Atlas.it, which shows quotations coded under the category 'Research on Behavioural/Attitudinal factors in Drivers' that later formed one of the important themes in the study. It represents about the process of applying codes in the quotation manager and links each quotation to one or more codes to help examine the patterns and analyse themes.

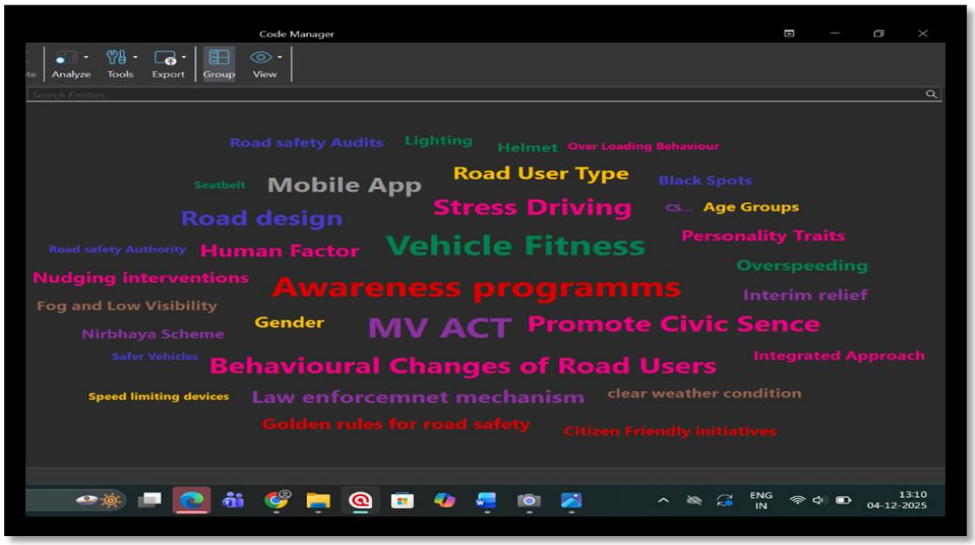
**Figure 2:** Screenshot Overview of the 'Quotation Manager' in Atlas. ti showing the organisation of extracted text segments for analysis.




Source- Prepared by author on date 17/11/2025

3. Searching for Themes- In this process, codes developed were grouped into larger categories like code groups and code-document tables using Atlas. ti for developing themes. Codes that appear repeatedly across multiple years of reports and academic papers were considered strong themes. Each theme was checked against the entire dataset to ensure it was supported by enough quotations. Figure-3 displays the screenshot overview showing 'word cloud' related to identified codes in the process for searching for themes.

**Figure 3:** Screenshot Overview of the 'Code Manager' in Atlas. ti showing 'word cloud' used to support the identification of initial codes during early coding stage.

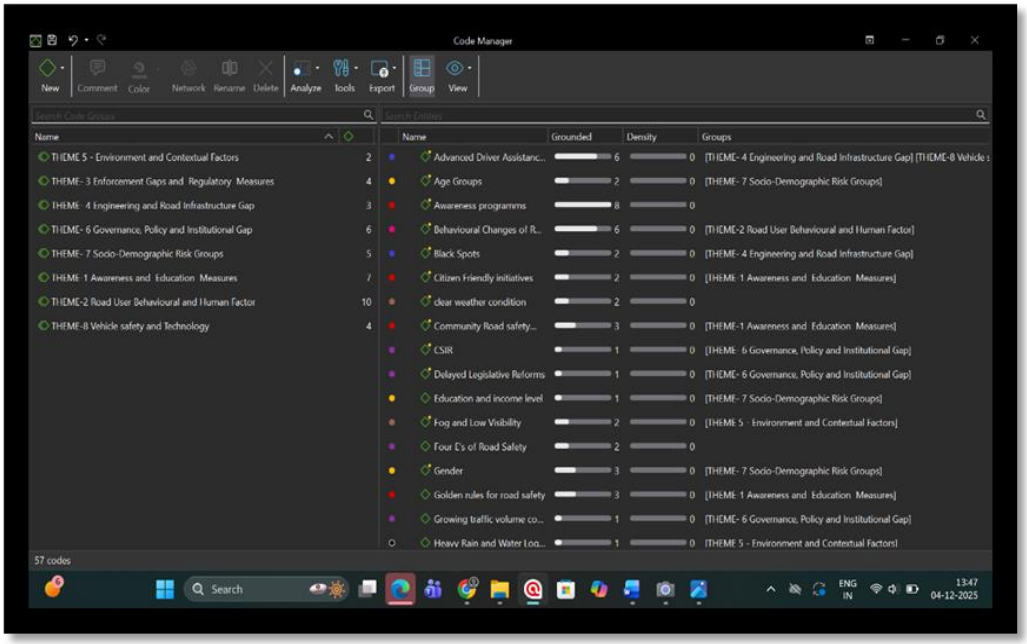



Source- Prepared by author on date 17/11/2025

Figure-3 related to 'word cloud' analysis highlighted the most frequently mentioned words/codes in the documents. Among this most frequently appeared word was related to the codes of Behavioural and human factors (See Pink Colour for visual clarity).

4. Reviewing Themes- Themes were reviewed and checked against full dataset from MoRTH reports and Academic literatures, so as to ensure conceptual clarity and logical coherence. And all coded segments were distributed to check for the themes that are not overlapping. All the similar codes were grouped together to form themes like enforcement, engineering, behavioural factors etc. Codes missing in the government reports but present in literature were noted as gaps. Memos were created to organise and refine these themes. Figure 4 shows the screenshot overview of the Code manager part in Atlas.it showing the eight themes developed during the process of data feeding.

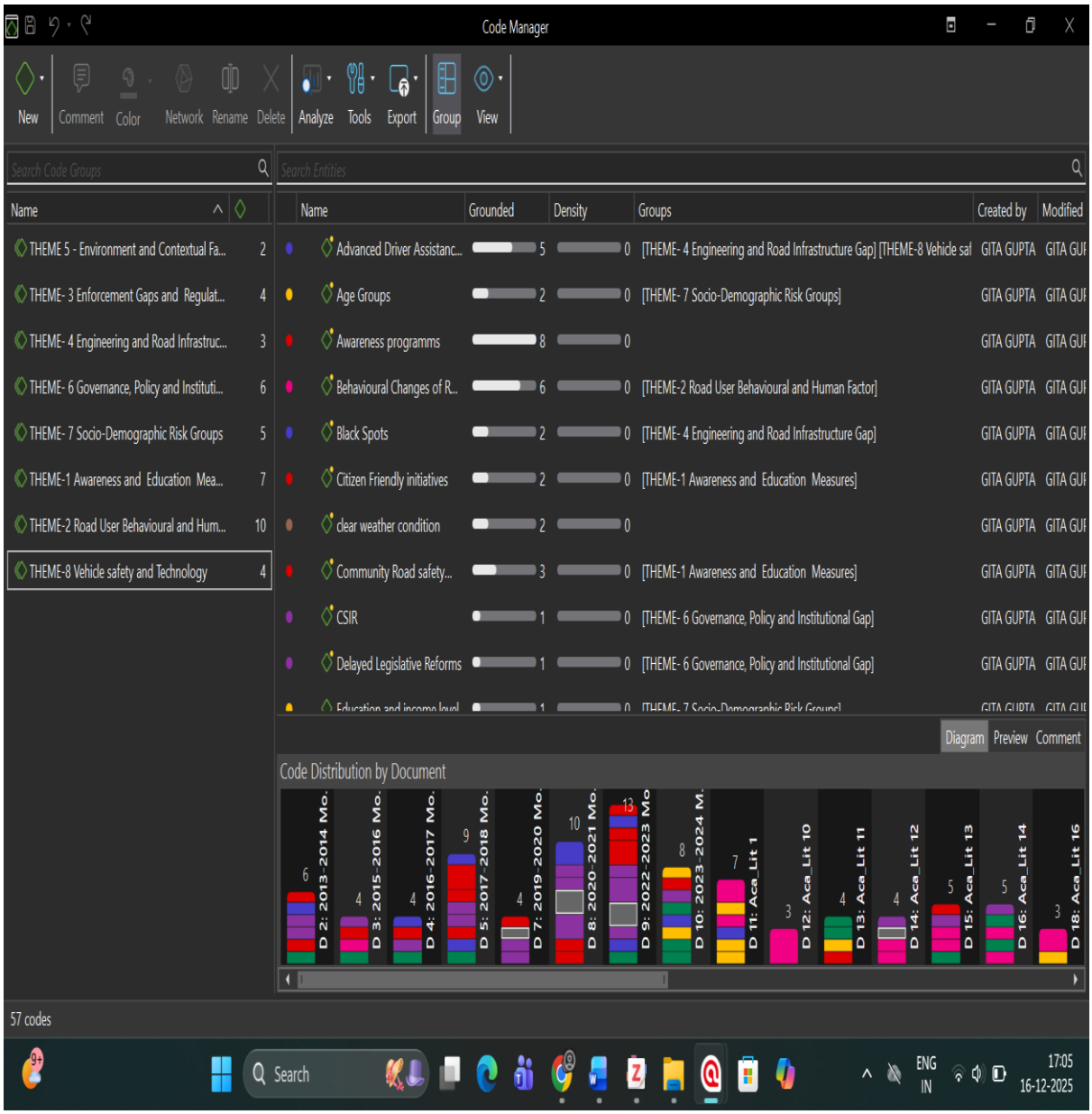
**Figure 4:** Screenshot Overview of the 'Code Manager' in Atlas.ti showing the eight themes developed after completion of thematic coding.




Source- Prepared by author on date 17/11/2025

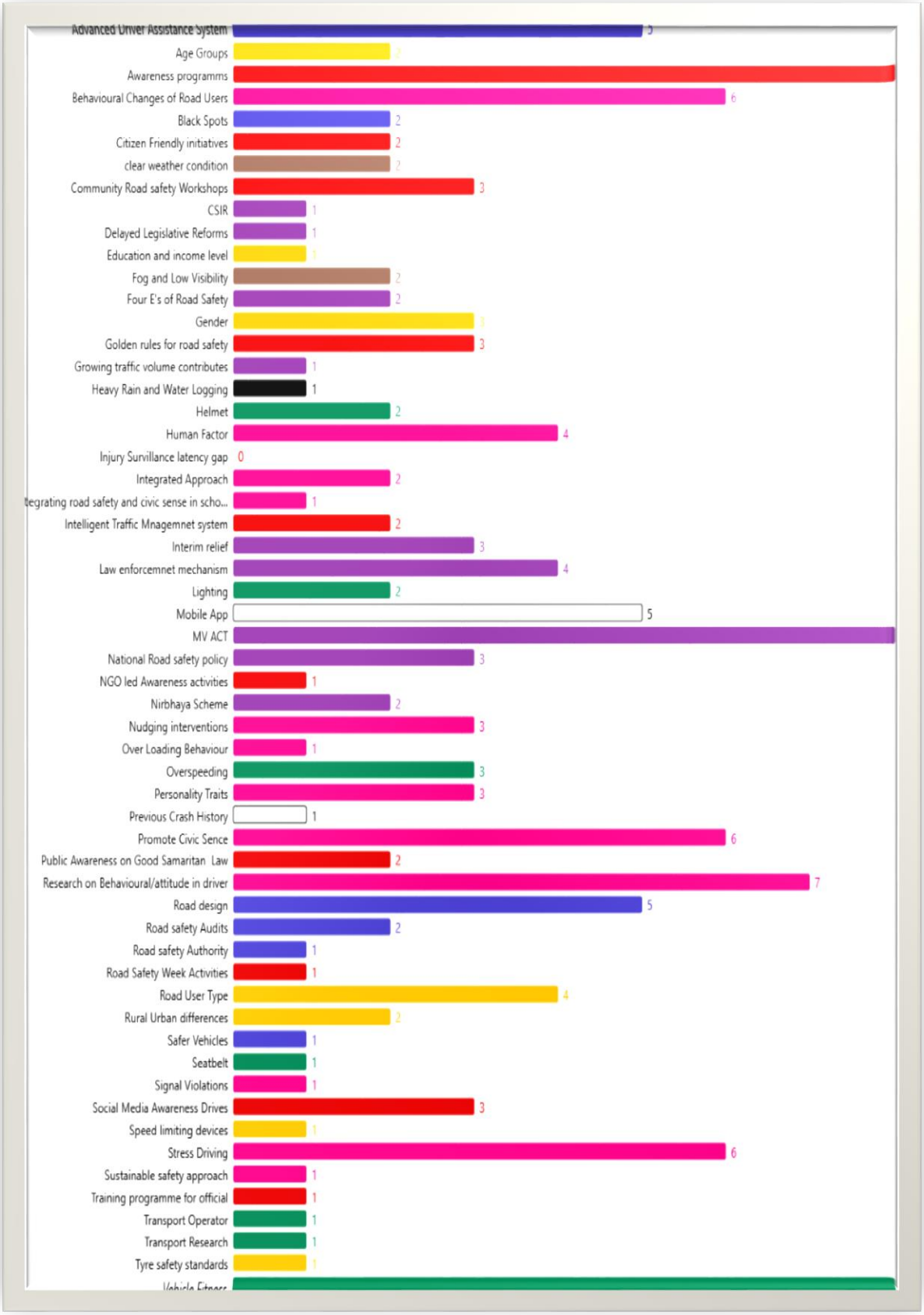
5. Defining and Naming Themes- All 57 codes generated from 121 quotations of 50 documents were organised based on its relation to type of road safety measures and factors into eight themes and each of its naming was done very clearly to reflect their content. All eight themes formed were assigned a common colour to facilitate visual grouping. (See Figure-5) Themes formed with names and assigned colours are 1. Awareness and education measures/ red colour 2. Road User Behavioural and Human Factor /Pink colour 3. Enforcement Gaps and Regulatory Measures/ Blue colour 4. Engineering and Road Infrastructure Gap/Green colour 5. Environmental and contextual factors/Brown colour 6. Governance, policy and Institutional Gaps/Purple colour 7. Socio-Demographic risk groups/Yellow colour 8. Vehicle safety and Technology/Orange colour. The coloured bars in Figure-5 represents the frequency and distribution of coded segments across different documents, with each colour corresponding to a specific theme or code group. Whereas Figure-6 represents overview of the 'Code Manager' in Atlas. ti showing bar chart code distribution across documents.

**Figure 5:** Screenshot Overview of the 'Code Manager' in Atlas.ti showing showing code distribution across documents and thematic categories.



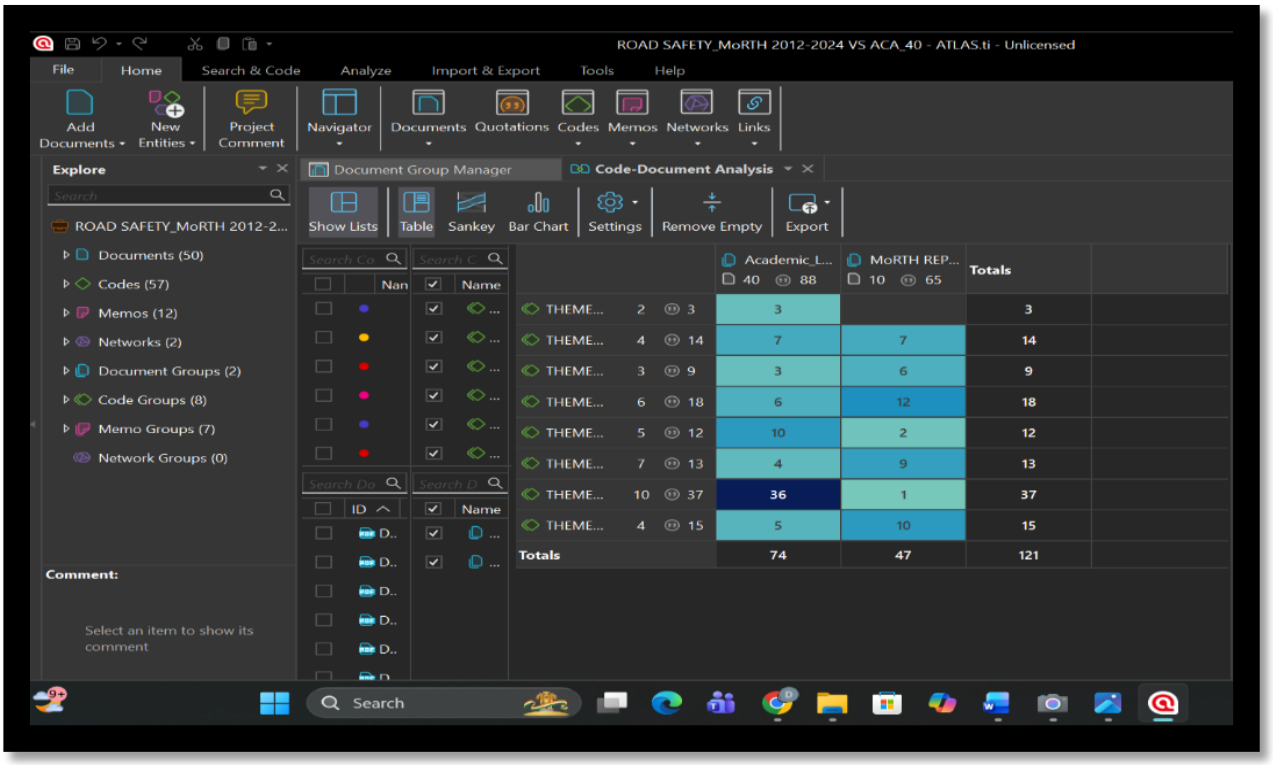

Source- Prepared by author on date 17/11/2025

**Figure 6:** Screenshot Overview of the 'Code Manager' in Atlas.ti showing bar chart code distribution across documents.



**6. Producing the Report-** The final themes were summarised, supported by quotations, and compared across MoRTH reports and academic literature to identify gaps in safety measures. Thus, themes were developed inductively and then refined to compare policy measures with academic findings. Patterns of alignment and gaps were identified, forming the basis of the study's conclusions. The Figure-7 represents the screenshot overview of the 'Code document analysis' in Atlas. ti showing comparison of distribution of codes across different dataset. It signifies how different sources convey similar ideas through recurring codes, while also highlighting their distinct features.. This comparison helps in identifying dominant themes as well as contextual differences in how concepts are represented across datasets.

**Figure 7:** Screenshot Overview of the 'Code document analysis' in Atlas.ti showing comparison of codes: Illustrating similarities and differences in coding patterns across datasets/themes.




Source- Prepared by author on date 17/11/2025

In this study, reliability and validity measures were carefully integrated throughout the methodological process. The researcher ensured that each theme was supported by clearly defined codes and direct quotations from the data, thereby strengthening the rigor and trustworthiness of the thematic analysis. In addition, themes were continuously reviewed and checked against the original data to ensure accurate representation.

# RESEARCH FINDINGS AND DISCUSSION

The findings of the study are presented here, all 57 codes generated from 121 quotations of 50 documents (MoRTH Reports and Academic literature) related to road safety measures produced the patterns and trends specific in itself. While the process of theme development is described in the methodology section, this section presents the substantive findings derived from the thematic analysis.

The researcher also took care to include sufficient representation of themes from each relevant document to maintain analytical balance. Simple meaning and definition of each theme have been provided below for clarity. Below are explanations-

**Table 3: Description of Themes Emerging from codes generated from MoRTH and Academic literatures-based documents**

| S.no. | Theme / colour assigned to the themes for visual differentiation / | Description | Academic_ LIT 40 (1999-2025) Gr=74; GS=40 | MoRTH REPORTS (2013-2014 TO 2023-2024) Gr=47; GS=10 | Total |
|---|---|---|---|---|---|
| Theme 1 | Awareness and education measures (Red colour) **Gr=13; GS=8** | This theme primarily involves references related to traffic violation-based safety awareness programmes, traffic education initiatives, media campaigns, road safety events etc. | 4 | 9 | 13 |
| Theme 2 | Road User Behavioural and Human Factor (Pink colour) **Gr=37; GS=10** | Under this theme all references figuring out behavioural and attitudes of road users leading to traffic violations were used like drivers of car, buses, truck and taxi, two-wheeler rider, cyclist, pedestrians and other public transport users. Risk taking tendencies and human error related concerns were quoted, | 36 | 1 | 37 |
| Theme 3 | Enforcement Gaps and Regulatory Measures (Blue colour) **Gr=14; GS=4** | This theme highlights references related to enforcement mechanisms and regulatory methods, penalties, on ground enforcement practices, like policing, surveillance and other monitoring ways. | 7 | 7 | 14 |
| Theme 4 | Engineering and Road Infrastructure Gap (Green colour) **Gr=9; GS=3** | This theme underlines issues related to road infrastructure quality and road designs, capacity defects, bad maintenance, and other engineering related deficiencies affecting road safety. | 3 | 6 | 9 |
| Theme 5 | Environmental and contextual factors (Brown colour) **Gr=3; GS=2** | This thematic category includes contextual and environmental factors such as weather conditions, lighting, fog and low visibility traffic density, urban-rural settings, and other situational factors related to traffic violations. | 3 | 0 | 3 |

| | | | | | |
|---|---|---|---|---|---|
| Theme 6 | Governance, policy and Institutional Gaps (Purple colour) **Gr=18; GS=6** | This theme relates to national road safety policies, existing institutional setup and gaps in implementation of traffic laws and legislations. They focus on government-related factors influencing traffic regulations. | 6 | 12 | 18 |
| Theme 7 | Socio-Demographic risk groups (Yellow colour) **Gr=12; GS=5** | This theme contains references to traffic risk patterns related to specific demographic factors like age, gender, occupation and other such socio-economic features. | 10 | 2 | 12 |
| Theme 8 | Vehicle safety and Technology (Orange colour) **Gr=s15; GS=5** | This theme covers references associated with vehicle safety features, technological interventions like airbags, seatbelts, automation, advanced sensors roles etc. | 5 | 10 | 15 |
| | TOTAL | | 74 | 47 | 121 |

Source- Prepared by author from exported reports from Altas.it related to Code-Document analysis in code manager.

The thematic analysis of the selected MoRTH reports and academic literature resulted in the identification of eight key themes reflecting recurring patterns related to traffic rule violations in India. Table 3 (also see Figure -7) demonstrates the result findings comparison analysis. It presents the distribution of these themes across the analysed MoRTH reports and academic literature, based on coded references.

In Academic literature, portion of the Table 3 which shows GS=40 (Grounded sources) means number of distinct documents/sources in a document group consisting of 40 articles (from 1999-2025), that shows its consistency across different documents, whereas Gr=74 means Groundedness of codes (number of coded quotations linked to a codes or themes).

In Table-3 MoRTH Reports (from 2013-2014 to 2023-2024 includes ten years of imported documents) portion further shows Gr=47; GS=10 which signifies GS=10 (Grounded sources) means number of distinct documents/sources in a document group consisting of 10 MoRTH Reports, which shows its consistency across different documents, whereas Gr=47 means Groundedness of codes (number of coded quotations linked to a codes or themes).

Further, Table-3 also summarises the relative frequency of each code in the themes and the contribution of different data sources, highlighting the prominence of themes identified through the thematic analysis. Thus, the thematic analysis of the selected MoRTH reports and academic literature generated eight key themes (See Table-3) which reflected the final trends and patterns related to traffic violations in India. Among these Theme-2 Road User Behavioural and Human Factors emerged as the most eminent theme, supported by the highest number of coded quotations (Gr=37) across ten sources, out of which maximum codes (Total 36) were linked to academic literature and only 1 code linked to MoRTH report. Another theme named Awareness and Education Measures were also featured consistently, with fourteen coded references drawn from eight different sources (Gr=14; GS=8), elucidates educational initiatives and awareness strategies to control traffic violation efforts within both governmental and academic documents.

Another strategic management-based theme Governance, Policy and Institutional Gaps were supported by eighteen coded quotations across six different sources (Gr=18; GS=6), which again highlights about the structural barriers in traffic regulation. Similarly, Infrastructural vulnerabilities were placed under Engineering and Road Infrastructure Gap, which covered nine coded quotations from three sources (Gr;9; GS=3),

applied frequent references to road design and infrastructural deficiencies. Apart from these other social dimensions were also identified under theme named Socio-Demographic Risk Groups, which included twelve coded quotations drawn from five sources (Gr=12; GS=5).

Two more themes identified were Environmental and Contextual factors, though less prominent but was supported by three coded quotations from two distinct sources (Gr=3; GS=2) and finally theme named Vehicle Safety and Technology emerged as a distinct theme, supported by fifteen coded quotations across five sources (Gr = 15; GS = 5), reflecting consistent references to vehicle-related safety features and technological interventions within the analysed data.

# DISCUSSION

This paper aims to examine the causes and patterns of traffic rule violations in India by thematic analysis of MoRTH reports and Academic literature (Table 3 and Figure 5). The overall results clearly indicate a high degree of agreement in certain area alongside minor differences in how policy documents and scholarly research explains the contributing factors of traffic violations, while highlighting key dominant factors related to behavioural, structural and enforcement-related aspects of traffic non-compliance. As far as agreement related parameters/references are concerned (See Table 3) the result reveals that the Theme 3 (Enforcement gaps and Regulatory Measures) related issues like surveillance, penalties, policing and monitoring mechanisms are equally addressed (with frequency=7 in each) in both documents groups, highlighting its importance in policy publications and scholarly research. This suggests that strengthening everyday enforcement practice is crucial for reducing traffic violations. Similarly, Theme 4 (Governance, policy and Institutional Gaps) shows a higher concentration of references in MoRTH reports (frequency = 12) compared to the academic literature (frequency = 6), indicating a stronger emphasis on governance and institutional issues within policy documents rather than academics articles.

The study using the bottom-up approach of thematic analysis finally finds the following-

1. Among these Theme- 2 Road User Behavioural and Human Factors emerged as the most eminent theme, supported by the highest number of coded quotations (Gr=37) across ten sources, out of which maximum codes (Total 36) were linked to academic literature and only 1 code linked to MoRTH report.

2. Another theme named Awareness and Education Measures were also featured consistently, with fourteen coded references drawn from eight different sources (Gr=14; GS=8), elucidates educational initiatives and awareness strategies to control traffic violation efforts within both governmental and academic documents.

3. Another strategic management-based theme Governance, Policy and Institutional Gaps were supported by eighteen coded quotations across six different sources (Gr=18; GS=6), which again highlights about the structural barriers in traffic regulation.

4. Similarly, Infrastructural vulnerabilities were placed under Engineering and Road Infrastructure Gap, which covered nine coded quotations from three sources (Gr;9; GS=3), applied frequent references to road design and infrastructural deficiencies.

5. Apart from these other social dimensions were also identified under theme named Socio-Demographic Risk Groups, which included twelve coded quotations drawn from five sources (Gr=12; GS=5), highlighting that certain population groups face different levels of risk.

6. Two more themes identified were Environmental and Contextual factors, though less prominent but was supported by three coded quotations from two distinct sources (Gr=3; GS=2) and finally theme named Vehicle Safety and Technology emerged as a distinct theme, supported by fifteen coded quotations across five sources (Gr = 15; GS = 5), reflecting consistent references to vehicle-related safety features and technological interventions within the analysed data. It requires varying levels of emphasis across behavioural, regulatory, infrastructural, contextual, and technological factors.

The findings thus, supports the Theory of Planned Behaviour, showing low perceived control reduces compliance as far as traffic violations are considered, which means behavioural aspects and human error are the facets which needs more attention as a preventive measure for effective reduction of traffic violations.

# CONCLUSION AND SUGGESTIONS

Ultimately in conclusion, it is clear from the research findings that as road accidents are multi-causal therefore, it requires multifaceted measures to reduce the problems through collective efforts of all mechanisms. It requires varying levels of emphasis across behavioural, regulatory, infrastructural, contextual, and technological factors. As per research findings all the theme plays a pivotal role and therefore needs multi-dimensional approach but findings throw lights on the prevalent shortcomings in some preventive measures when it comes to traffic violations. Table -3 finally shows a comparative distribution of themes across two document groups MoRTH Reports (2012–2024) Academic Literature (1999-2025) and also the numbers in it indicate grounded quotations (frequency of coded evidence) under each theme. Among these Theme- 2 Road User Behavioural and Human Factors emerged as the most eminent theme, supported by the highest number of coded quotations (Gr=37) across ten sources. This analysis indicates two important parameters firstly, the issues related to individual behaviour, compliance, and human error are frequently documented across the analysed materials and secondly maximum references were drawn from academic literature highlighting less governmental intervention in these aspects.

Therefore, the research findings highlight that traffic rule violations in India can't be addressed successfully through enforcement focussed approaches alone. From the perspective of Theory of planned behaviour, it is very much clear that penalties and legal sanctions serve as short term solution for this big social issue and long term impactful corrective measure rests on resolving behavioural issues like working on subjective norms and attitudes of drivers.

It is therefore suggested that the government should work on applying TPB model (Theory of planned behaviour) in traffic management. Traffic violations issues like over speeding, dangerous overtaking, impaired driving, fatigue driving, distracted driving (use of mobile phone while driving), risky overtaking and tailgating, failing to obey traffic laws etc. are not simple lapses but are an intentional breaking of rules. Researches also proves that 9 out of 10 accidents are caused by human errors. (Miller,2022). Apart from that, academic evidences further indicates that the weak enforcement visibility and the social acceptability of violations increase drivers' confidence in rule-breaking, thereby making these minute discipline breaking habit a common culture among the people. Unexpected and hasty driving behaviour should be studied in depth to find sustainable solutions for it. Gupta, Goswami, and Kumar (2021) study examined the importance of self-reported driver behaviour questionnaire (DBQ) to analyse such behaviour which can be applied here also. As per this study results, it is suggested to bridge the gap between policy and practice, also culture so, as to enhance the common civic sense among the road users. There is an urgent need for integrated educational programmes that inculcate road-user etiquette into school, college curricula and implement community-centred intervention to reshape drivers and road user intentions to promote sustainable compliance with traffic regulations is the need of the hour. Traffic regulations should not only be enforced but should be culturally internalised through respect for others' lives and therefore, should be part of individual behaviour and habit. Because it is evident that, overtime, habit transforms into second nature.

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