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A Study on Pathway Anguish Faced by Pedestrians in Central Bangalore

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Abstract

The study investigates the phenomenon of "pathway anguish" in Central Bangalore, a rapidly urbanizing metropolis facing significant pedestrian infrastructure challenges. Despite its status as India's Silicon Valley, Bangalore's pedestrian pathways, particularly in areas like MG Road, Brigade Road, and Commercial Street, have deteriorated. Encroachments, poor maintenance, and inadequate urban planning have turned daily commutes into risky and stressful endeavors for residents, workers, and tourists alike. This study aims to highlight the pressing need for improved pedestrian infrastructure by exploring the root causes of these issues and offering potential solutions.

Inadequate pedestrian infrastructure has far-reaching socio-economic and environmental consequences affecting accessibility, safety, and urban mobility. Through a combination of field observations, stakeholder interviews, and case studies, the study identifies key problem areas, including the lack of dedicated pedestrian zones, insufficient enforcement of regulations, and the adverse effects of rapid commercialization. By examining global best practices and proposing policy-driven and design-centric solutions, this paper advocates for a pedestrian-friendly urban model that prioritizes walkability, sustainability, and equitable urban development.

Keywords: Bangalore, pedestrian infrastructure, pathway anguish, urban planning, walkability, encroachments, public safety, civic infrastructure.

INTRODUCTION

Bangalore, often referred to as the "Silicon Valley of India," has witnessed rapid urban expansion and economic development over the past few decades. The city's population has surged as people from across the country migrate here in search of employment opportunities in technology, education, and service industries. While this growth has contributed significantly to the city's economy, it has also put immense pressure on its infrastructure. But beneath the city's skyscrapers, famous marketplaces, and vibrant energy is a darker reality—a constant struggle that many people who walk through it must endure.

The phrase "pathway anguish" perfectly captures the annoyance, discomfort, and even risk that commuters and pedestrians face every day as they make their way through this urban center's congested, frequently chaotic streets and walkways. Bangalore's infrastructure is unable to meet the demands of an ever-increasing population as the city continues to grow quickly. When sidewalks are present, they are frequently small, damaged, or overflowing with rubbish, parked cars, and street sellers, requiring people

to cross the street with heavy traffic. The stress of just getting across the city is increased by the dearth of accessible pedestrian crossings, dimly lighted places, and the deafening noise and pollution. The daily drive turns into a test of endurance, patience, and alertness for many. Because the disorderly surroundings might affect mental health, this suffering is not just a physical one.Beyond just the physical strain of walking, there is a sensation of exhaustion brought on by the constant desire to prevent collisions, avoid barriers, and maneuver through crowds of people. Thus, Central Bangalore's walkway misery emphasizes the need for better pedestrian infrastructure, more careful urban planning, and solutions that cater to the needs of everyone navigating the center of this busy city.

The article "Bad Pits of Bengaluru" describes the dramatic decline in the city's road conditions, with a special emphasis on the expanding pothole problem on arterial and sub-arterial routes. Potholes continue to cause daily accidents and fatalities, particularly among cyclists and pedestrians, despite large sums of money being set aside for road maintenance, which includes the use of hot asphalt mixes. The Bruhat Bengaluru Mahanagara Palike's (BBMP) tardy response has angered even public officials, such as Revenue Minister Krishna Byre Gowda. By causing damage to drains and making flooding problems worse during rainy seasons, metro construction and other infrastructure projects have made matters worse. The administration's carelessness and subpar road repairs are still being criticized by activists and citizens (Bad pits of Bengaluru).

Objectives:

This study addresses the pressing issue of deteriorating pedestrian pathways in central Bangalore, a rapidly growing urban hub struggling with poor urban planning. Key areas like MG Road, Brigade Road, and Commercial Street face overcrowded, unsafe, and poorly maintained walkways due to encroachments, potholes, and inadequate safety measures. Despite municipal efforts, many sections remain hazardous, forcing pedestrians onto the streets. This decline not only endangers public safety—especially for the elderly, children, and people with disabilities—but also discourages walking, increasing reliance on motor vehicles and worsening traffic congestion and air pollution. The report explores the causes behind these issues and proposes solutions for a safer, more accessible pedestrian infrastructure. The key objectives that the research focuses on are as follows:

1. Assess the Overall Condition and Accessibility of Pathways in Central Bangalore.
2. Examine Safety, Lighting, and Infrastructure for Pedestrians
3. Identify Areas for Improvement and Policy Recommendations

Significance of study

This study highlights the urgent need for improved pedestrian infrastructure in Central Bangalore, a city grappling with rapid urbanization and poor urban planning. The findings aim to raise awareness about the daily struggles faced by pedestrians due to encroachments, poor maintenance, and inadequate safety measures. By identifying key problem areas and proposing sustainable solutions, the research contributes to policy discussions, urban planning strategies, and initiatives that promote walkability. Moreover, enhancing pedestrian pathways can improve public safety, reduce traffic congestion, and lower air pollution, ultimately fostering a more inclusive and livable urban environment.

Scope of study

This study examines pedestrian infrastructure in key areas of Central Bangalore, including MG Road,

Brigade Road, Commercial Street, and Church Street. It assesses the condition of walkways, accessibility barriers, and safety concerns while analyzing their impact on urban mobility. Additionally, the research explores existing municipal policies, the effectiveness of regulatory enforcement, and possible urban design interventions to improve pedestrian infrastructure. While the primary focus is on Bangalore, the insights and recommendations presented may be relevant to other rapidly expanding Indian cities facing similar urban planning challenges.

REVIEW OF LITERATURE

A new model to estimate pedestrian deaths from speed-related interventions.

Author – Goel R

Publication – 2021

In his 2021 study, Goel introduces a new model estimating pedestrian fatalities preventable through speed-related interventions. The model, built on statistical analysis of real-world crash data, demonstrates that even modest speed reductions significantly lower fatality risk. Focusing on pedestrian-dense zones, the research shows that speed limits below 30 km/h and active enforcement—via speed cameras, traffic calming, and public awareness—yield substantial safety improvements. Although primarily theoretical and lacking empirical validation, the model offers policymakers a practical framework for planning speed reduction strategies, with future research needed to refine its applicability across varied urban contexts.

Explaining reduction of pedestrian–motor vehicle crashes in Arkhangelsk, Russia, in 2005–2010

Author - Kudryavtsev, A. V., Nilssen, O., Lund, J., Grjibovski, A., & Ytterstad, B.

Publication - 2012

Kudryavtsev et al. (2012) examines a significant decline in pedestrian–motor vehicle crashes in Arkhangelsk, Russia (2005–2010). They attribute the reduction to a combination of targeted interventions including infrastructure improvements (more crossings, better lighting, traffic-calming measures), enhanced law enforcement (stricter penalties, increased monitoring), and public education campaigns. Analysing comprehensive accident data from multiple sources, the authors note these measures were effective across various weather and seasonal conditions. The study offers a replicable model for other regions while emphasizing the need for ongoing evaluation, further research on long-term sustainability, and practical implications.

Situational characteristics of fatal pedestrian accidents involving vehicles traveling at low speeds in Japan

Author - Matsui, Y., & Oikawa, S.

Publication - 2019

Matsui and Oikawa (2019) analyse fatal pedestrian accidents in Japan involving vehicles traveling below 20 km/h, challenging the assumption that low speeds are always safe. Their study reveals that fatal outcomes can occur due to situational factors, such as the advanced age of pedestrians—especially those over 65—and the involvement of larger vehicles like trucks and buses. The research highlights that low-speed accidents frequently occur in residential areas, parking lots, and driveways, exacerbated by poor visibility and adverse conditions. The authors advocate for targeted safety measures, improved vehicle detection and braking technologies, and public awareness campaigns to protect pedestrians.

Features of pedestrian behaviour in car-to-pedestrian contact situations in near-miss incidents in Japan.

Author - Matsui, Y., Hitosugi, M., Doi, T., Oikawa, S., Takahashi, K., & Ando, K.

Publication - 2013

Matsui et al. (2013) analyse pedestrian behaviour during near-miss incidents in Japan, focusing on car-to-pedestrian encounters. By examining video footage and driver reports, they identify that misjudgement of vehicle speed and distance—particularly among elderly pedestrians—increases near-miss risks. Observational data reveals spontaneous actions in high traffic density and low visibility conditions. Their findings underscore the importance of public awareness, improved infrastructure, and advanced driver-assistance systems (ADAS) in mitigating these risks. The study calls for further exploration of driver behaviour and environmental factors to develop comprehensive interventions that enhance overall pedestrian safety.

Road risk behaviours: Pedestrian experiences

Author - Narváez, Y. V., Parra Sierra, V., Peña Cárdenas, F., Ruíz Ramos, L., Zamorano González, B., Vargas Martínez, J. I., & Monreal Aranda, O.

Publication - 2019

Narváez et al. (2019) investigate pedestrian risk behaviours in urban settings using qualitative methods, including interviews and surveys. Their findings reveal that pedestrians often engage in risky actions—such as jaywalking, crossing outside designated areas, and distracted walking—driven by perceived convenience and time pressures. Inadequate infrastructure, poor lighting, and long distances between safe crossing points further contribute to these behaviours. The study emphasizes that cultural, psychological, and environmental factors shape pedestrian actions, calling for tailored public awareness campaigns and improved urban design. Future research should compare risk perceptions across different demographics and urban contexts to develop more effective traffic injury prevention strategies.

Cyclist and pedestrian trust in automated vehicles: An on-road and simulator trial.

Author - Parkin, J., Crawford, F., Flower, J., Alford, C., Morgan, P., & Parkhurst, G.

Publication – 2022

Parkin et al. (2022) examines cyclist and pedestrian trust in automated vehicles (AVs) using on-road and simulator trials. Their study reveals that clear communication—via indicators or external displays—and predictable, rule-abiding AV behaviour significantly enhance trust among vulnerable road users. Participants felt safer when AVs maintained consistent speeds and adhered to traffic rules, while younger and experienced individuals trusted AVs more than older users. Although limited by trial conditions, the findings emphasize the need for effective communication tools, standardized behaviour, and safe design practices in AVs. These insights offer valuable recommendations for developers and policymakers to improve the integration of AVs in urban traffic environments.

Morbidity and mortality patterns of pedestrian injuries by age at the Puerto Rico Trauma Hospital from 2000 to 2014

Author - Pelet-Del-Toro, N., Ramos-Meléndez, E. O., García-Rodríguez, O., Mejías, J. P., Rodríguez-Ortiz, P., & Shiri, R

Publication – 2019

Pelet-Del-Toro et al. (2019) analysed 14 years of pedestrian injury data at the Puerto Rico Trauma Hospital to examine how injury severity and mortality vary by age. They found that elderly pedestrians (65+) experience the highest mortality due to frailty and pre-existing conditions, while children have higher morbidity but lower mortality. Middle-aged adults represent the largest injured group. Injury rate fluctuations were linked to changes in traffic laws, urban development, and economic conditions. The study emphasizes targeted interventions—such as improved infrastructure, safety education, and effective

policies—to reduce pedestrian injuries and fatalities across age groups, providing insights for public health.

A rubberized impact absorbing pavement can reduce the head injury risk in vulnerable road users: A bicycle and a pedestrian accident case study.

Author - Sahandifar, P., Makoundou, C., Fahlstedt, M., Sangiorgi, C., Johansson, K., Wallqvist, V., & Kleiven, S.

Publication – 2022

Sahandifar et al. (2022) explore rubberized impact-absorbing pavement (RIAP) as an innovative measure to reduce head injury risks for vulnerable road users, particularly cyclists and pedestrians. Using biomechanical simulations in both bicycle and pedestrian accident scenarios, the study demonstrates that RIAP can lower the Head Injury Criterion (HIC) by up to 50% compared to traditional asphalt or concrete surfaces. The research reveals that while RIAP is highly effective in high-speed bicycle accidents, its benefits are somewhat less pronounced for pedestrians due to lower speeds. The authors advocate for RIAP's use in critical urban areas and call for further real-world testing to assess long-term durability and cost-effectiveness.

Death traps: Holes in urban India

Author - Solomon, H

Publication – 2021

Solomon (2021) investigates hazardous urban infrastructure in Indian cities, focusing on potholes and open manholes that create "death traps" for pedestrians and drivers. Through case studies, field observations, and resident interviews, the study reveals how poor maintenance and regulatory failures lead to frequent injuries and fatalities. The research emphasizes that these issues worsen social inequities by disproportionately affecting marginalized communities. Solomon calls for urgent policy reforms that prioritize routine infrastructure maintenance, community engagement, and greater accountability in urban governance to improve public safety and create safer, more equitable urban environments.

Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: A review of the evidence.

Author - Volker, J. M. B., & Handy, S

Publication – 2021

Volker and Handy (2021) systematically review the economic impacts of bicycle and pedestrian infrastructure on local businesses. They find that such investments generally boost foot traffic, sales, and economic vitality by enhancing accessibility and aesthetics, benefiting businesses serving active transportation users. However, some studies report mixed results, with reallocated road space potentially reducing motor vehicle access and parking. The review emphasizes that impacts vary based on contextual factors like local density, land use, and transportation networks, and that short-term disruptions may be offset by long-term gains. Their synthesis provides valuable insights for policymakers and urban planners seeking sustainable, context-sensitive strategies.

Driver compliance and pedestrian safety at zebra crossings in the Cape Coast Metropolis, Ghana.

Author - William, A., Kolawole, O. T., Comfort, O. A., & Francis, A.

Publication - 2021

William et al. (2021) examines driver compliance at zebra crossings in Ghana's Cape Coast Metropolis using a mixed-methods approach. Their study reveals that low compliance—exacerbated by high traffic volumes, poor road conditions, and inadequate signage—results in significant pedestrian safety risks.

Pedestrians report feeling unsafe and often avoid designated crossings. The research highlights that visible law enforcement improves compliance, while the lack of it increases risk. Based on these findings, the authors recommend infrastructure improvements, public awareness campaigns, and stricter enforcement measures to promote safer pedestrian environments. Further research is needed to explore demographic influences and context-specific factors across urban and rural settings in Ghana.

Research on the correlation between pedestrian density and street spatial characteristics of commercial blocks in downtown area: A case study on Shanghai Tianzifang.

Author - Fang, K., Wang, X., Chen, L., Zhang, Z., & Furuya, N.

Publication - 2019

Fang et al. (2019) examines how street spatial characteristics affect pedestrian density in Shanghai's Tianzifang commercial district using spatial analysis and GIS. They assess factors such as street width, building height, and commercial presence. The study finds that narrow streets, moderate building heights, and vibrant commercial zones—enhanced by amenities like greenery and seating—are strongly correlated with higher pedestrian density. Emphasizing human-scale design and the integration of diverse cultural and commercial elements, the research offers practical recommendations for urban planners seeking to enhance walkability and create engaging, accessible commercial spaces that foster economic vitality.

RESEARCH METHODOLOGY

Research Design – The study utilizes a mixed-methods approach, combining both quantitative and qualitative data collection. The quantitative component involves an online survey administered to a broad population of pedestrians, while the qualitative aspect includes in-depth, face-to-face interviews with a targeted sample of residents and commuters. This design allows for the quantification of pedestrian experiences and the nuanced exploration of specific challenges faced on the sidewalks of Central Bangalore. The study is exploratory in nature, seeking to identify and analyze common infrastructural issues and their impact on pedestrian safety and accessibility.

Sample Design – The sample for this study is purposively selected to represent diverse demographics of pedestrians in Central Bangalore, focusing on various age groups and including vulnerable populations such as the elderly, children, and people with disabilities. This diversity is crucial to capture a comprehensive understanding of the pedestrian experience, particularly in relation to the infrastructural limitations that impact accessibility and safety. The online survey sample was distributed randomly among Central Bangalore residents, while offline interviews targeted specific locations known for high foot traffic and infrastructural challenges.

Data Sources –

Online Survey: Collected through digital platforms, the survey includes multiple-choice and Likert-scale questions to quantify common pedestrian issues and capture the general sentiment on public pathways in Central Bangalore.

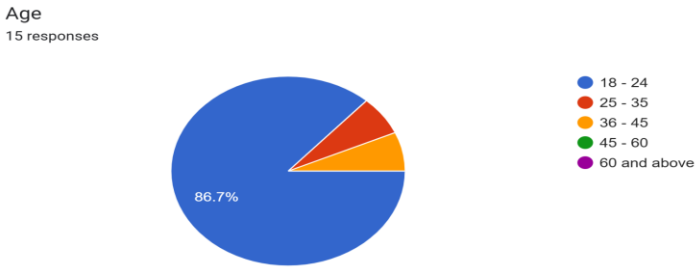
FINDINGS AND ANALYSIS

Findings:

1. Age

Answers	No. Of Respondents	Percentage

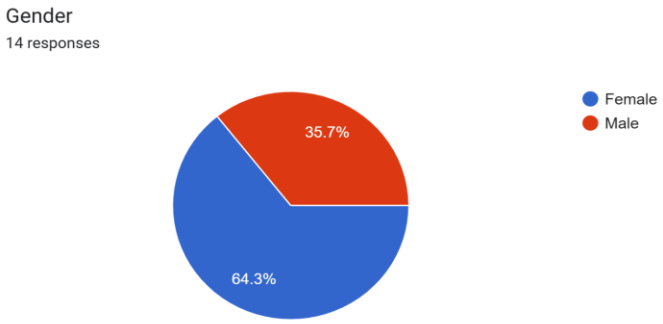
18 - 24	13	86.7%
25 - 35	1	6.7%
36 - 45	1	6.7%
45 -60	0	0
60 and above	0	0



The analysis of the data portrays a distinct trend among the respondents since 86.7% of them are between 18-24 years old, while smaller figures are in the 25-35 and 36-45 age groups. The large figure of young respondents indicates that the survey captured predominantly the youth population. From this pattern, it transpires that opinions and tastes indicated in the survey are largely influenced by people within the given age group. The predominance of age group 18-24 reveals a potential focus on issues and concerns of interest to the youth, which may affect the overall result from the answers.

2. Gender

Answers	No. Of Respondents	Percentage
Female	9	64.3%
Male	5	35.7%



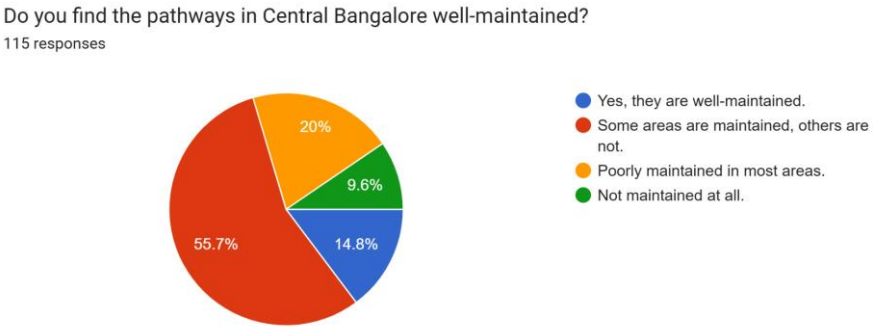
The breakdown of the respondents is 64.3% female and 35.7% male, indicating that the majority of the

people who took part in the survey were female, and it reflects that there was more participation or interest from this gender. The overrepresentation of females may influence the overall outcome because the answers are more reflective of female opinions. The trend indicates that gender differences ought to be considered when interpreting the findings of the survey.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

3. Do you find the pathways in Central Bangalore well-maintained?

Answers	No. Of Respondents	Percentage
Yes, they are well-maintained.	17	14.8%
Some areas are maintained, others are not.	64	55.7%
Poorly maintained in most areas.	23	20%
Not maintained at all.	11	9.6%

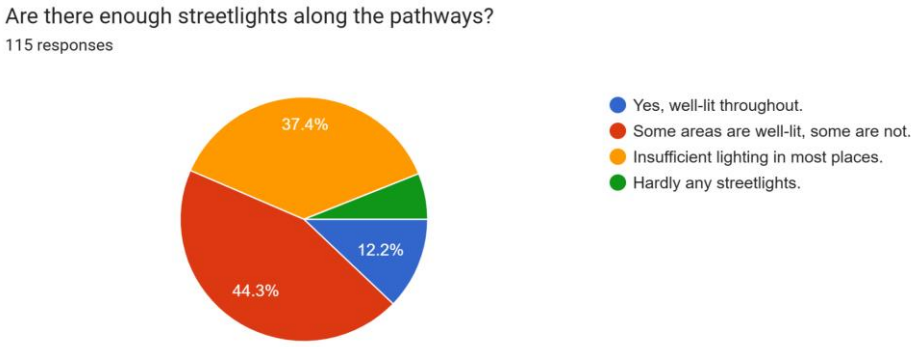


The analysis of data indicates that perceptions of the maintenance of pathways in Central Bangalore are mixed. Only 14.8% of the respondents perceive the pathways to be well-maintained, indicating that a small minority holds a positive view of the infrastructure. The majority (55.7%) believe that some areas are maintained but others are not, indicating inconsistency in maintenance. In addition, 20% of the respondents indicate that pathways are poorly maintained in most areas, while 9.6% believe they are not maintained at all. The data indicate a general concern regarding the condition of pathways, with the majority of respondents being dissatisfied, which indicates the need for improved maintenance of infrastructure.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

4. Are the pathways wide enough for pedestrian use?

Answers	No.Of Respondents	Percentage
Yes, they are spacious.	18	12.2%
Some areas are wide, others are narrow.	67	44.3%
Too narrow for comfortable use.	19	37.4%
Extremely congested and difficult to walk on	11	9.6%



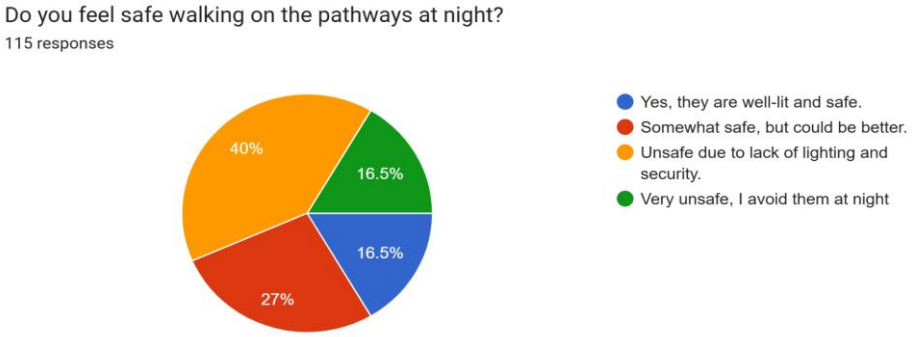
The analysis of the data reveals mixed opinions regarding the width of pathways for pedestrian use in Central Bangalore. Only 12.2% of respondents believe the pathways are spacious, indicating that a small minority finds them adequately wide. The majority (44.3%) feel that while some areas are wide, others are narrow, suggesting inconsistency in pathway design. Additionally, 37.4% state that pathways are too narrow for comfortable use, while 9.6% find them extremely congested and difficult to walk on. This data highlights significant concerns about pedestrian space, emphasizing the need for better planning and improvements to ensure safe and accessible pathways for all users.

Examine Safety, Lighting, and Infrastructure for Pedestrians

5. Do you feel safe walking on the pathways at night?

Answers	No.Of Respondents	Percentage
Yes, they are well-lit and safe.	19	16.5%

Somewhat safe, but could be better.	31	27%
Unsafe due to lack of lighting and security	46	40%
Very unsafe, I avoid them at night.	19	16.5%



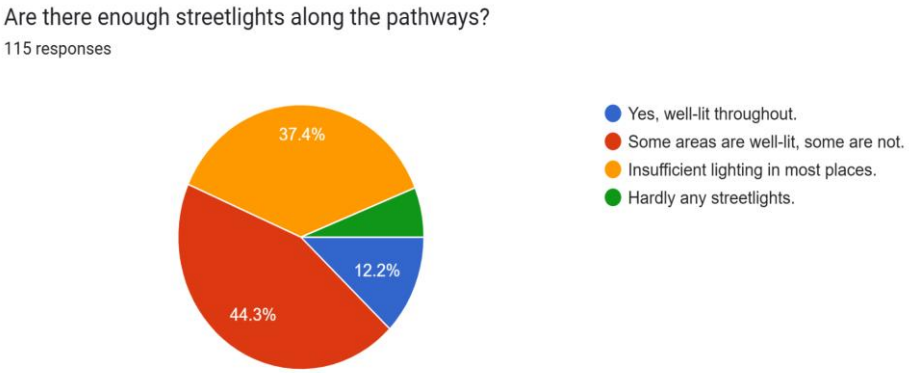
The data analysis shows that there are serious concerns about the safety of pedestrians on paths at night in Central Bangalore. Just 16.5% of the respondents think that the paths are well-lit and safe, which means that a small minority feels there is sufficient security. Another 27% feel fairly safe but think that there should be some improvement. A high 40% think that the paths are unsafe because of a lack of lighting and security, while another 16.5% think they are very unsafe and avoid using them at night. These results indicate that there is a need for better lighting, monitoring, and security to enhance nighttime security for pedestrians.

Examine Safety, Lighting, and Infrastructure for Pedestrians

6. Are there enough streetlights along the pathways?

Answers	No.Of Respondents	Percentage
Yes, well-lit throughout.	14	12.2%
Some areas are well-lit, some are not.	51	44.3%
Insufficient lighting in most places.	47	37.4%

Hardly any streetlights.	7	6.1%

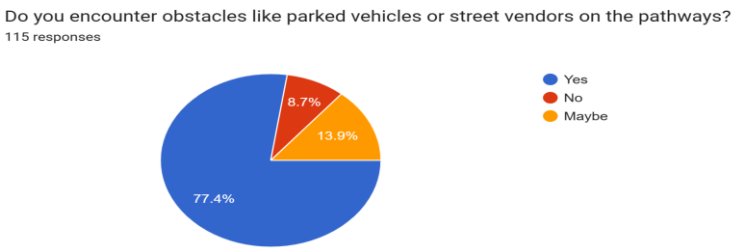


The analysis of the data reveals that street lighting along pathways in Central Bangalore is inconsistent. Only 12.2% of respondents feel that the pathways are well-lit throughout, indicating that a small minority finds the lighting adequate. The majority (44.3%) state that while some areas are well-lit, others are not, highlighting irregular distribution. Additionally, 37.4% believe that most places have insufficient lighting, while 6.1% report hardly any streetlights. These findings suggest that inadequate lighting is a concern for many pedestrians, emphasizing the need for improved and evenly distributed street lighting to enhance safety and visibility.

Examine Safety, Lighting, and Infrastructure for Pedestrians

7. Do you encounter obstacles like parked vehicles or street vendors on the pathways?

Answers	No. Of Respondents	Percentage
Yes	89	77.4%
No	10	8.7%
Maybe	16	13.9%

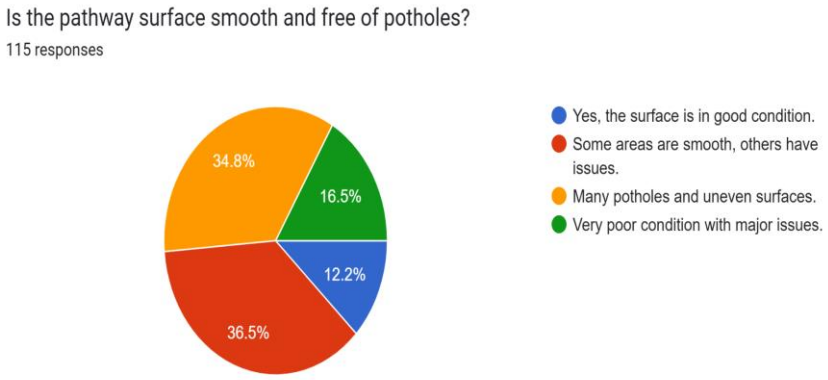


The analysis of the data reveals that a significant majority of respondents (77.4%) encounter obstacles such as parked vehicles or street vendors on the pathways, indicating a widespread issue affecting pedestrian movement. A small minority (8.7%) report no such obstructions, while 13.9% are uncertain or

have encountered them occasionally. These findings suggest that encroachments on pathways are a common concern, potentially impacting pedestrian safety and accessibility. Addressing these obstacles through better regulation and enforcement could improve the overall walking experience.
Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

8. Is the pathway surface smooth and free of potholes?

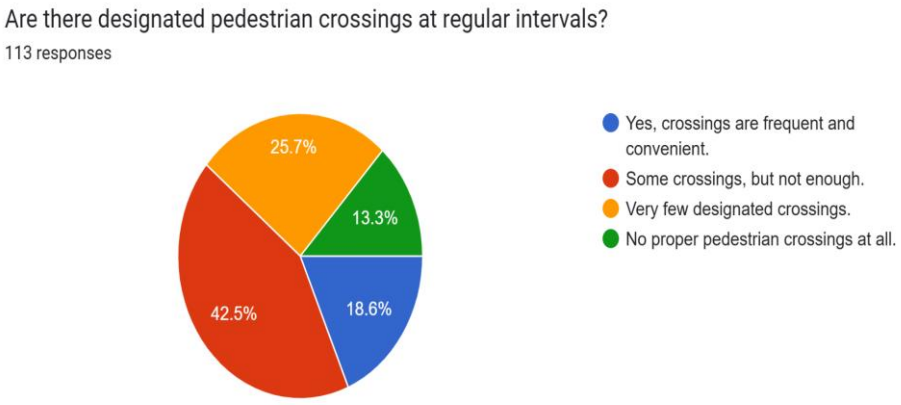
Answers	No.Of Respondents	Percentage
Yes, the surface is in good condition.	14	12.2%
Some areas are smooth, others have issues.	42	36.5%
Many potholes and uneven surfaces.	40	34.8%
Very poor condition with major issues.	19	16.5%



The analysis of the data reveals that the condition of pathway surfaces in Central Bangalore is a concern for many pedestrians. Only 12.2% of respondents believe the surface is in good condition, indicating that well-maintained pathways are rare. The majority (36.5%) report that some areas are smooth while others have issues, highlighting inconsistencies in maintenance. Additionally, 34.8% state that many potholes and uneven surfaces exist, while 16.5% describe the pathways as being in very poor condition with major issues. These findings suggest a need for improved pathway maintenance to ensure safer and more accessible pedestrian infrastructure.
Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

9. Are there designated pedestrian crossings at regular intervals?

Answers	No. Of Respondents	Percentage
Yes, crossings are frequent and convenient.	21	18.6%
Some crossings, but not enough.	48	42.5%
Very few designated crossings.	29	25.7%
No proper pedestrian crossings at all.	15	13.3%



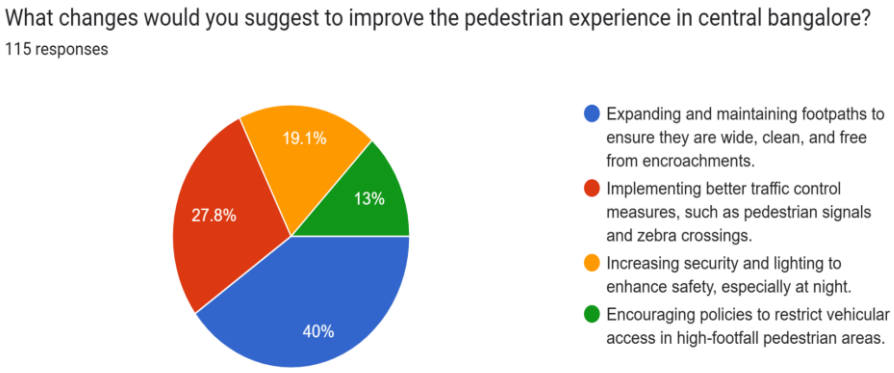
The analysis of the data reveals that the availability of dedicated pedestrian crossings in Central Bangalore is not satisfactory for the majority of the respondents. Only 18.6% feel that crossings are frequent and convenient, indicating that properly designed pedestrian infrastructure is not available. The majority (42.5%) feel that while some crossings exist, they are not sufficient, indicating a gap in accessibility. Another 25.7% mention that there are very few dedicated crossings, and 13.3% mention no proper pedestrian crossings at all. These findings suggest a need for more strategically placed pedestrian crossings to increase safety and ease of movement for pedestrians.

Examine Safety, Lighting, and Infrastructure for Pedestrians

10. What changes would you suggest to improve the pedestrian experience in central bangalore?

Answers	No. Of Respondents	Percentage
Expanding and maintaining footpaths to ensure they are wide,	46	40%

clean, and free from encroachments.		
Implementing better traffic control measures, such as pedestrian signals and zebra crossings.	32	27.8%
Increasing security and lighting to enhance safety, especially at night.	22	19.1%
Encouraging policies to restrict vehicular access in high-footfall pedestrian areas.	15	13%



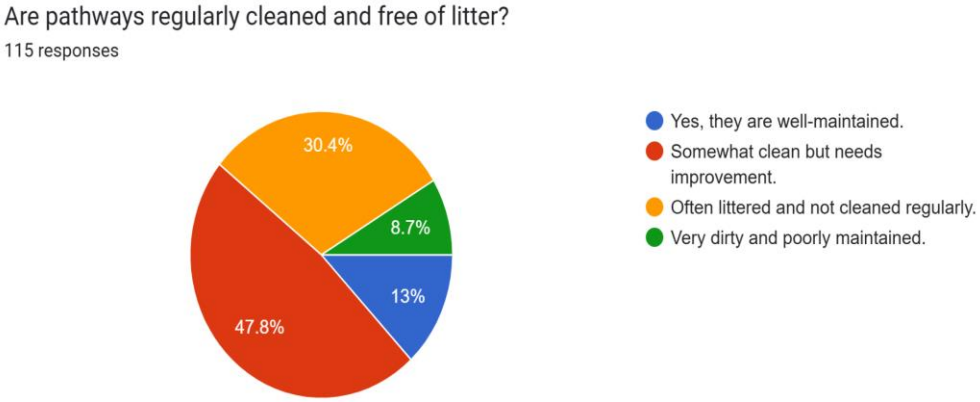
The analysis of the data highlights key areas for improving the pedestrian experience in Central Bangalore. The majority of respondents (40%) suggest expanding and maintaining footpaths to ensure they are wide, clean, and free from encroachments, indicating that inadequate and obstructed pathways are a major concern. Additionally, 27.8% advocate for better traffic control measures, such as pedestrian signals and zebra crossings, to enhance pedestrian safety. Another 19.1% emphasize the need for increased security and lighting, particularly at night, while 13% support policies restricting vehicular access in high-footfall pedestrian zones. These findings suggest that improving infrastructure, traffic management, and safety measures can significantly enhance the overall pedestrian experience.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

11. Are pathways regularly cleaned and free of litter?

Answers	No. Of Respondents	Percentage
Yes, they are well-maintained.	15	13

Somewhat clean but needs improvement.	55	47.8
Often littered and not cleaned regularly.	35	30.4
Very dirty and poorly maintained.	10	8.7



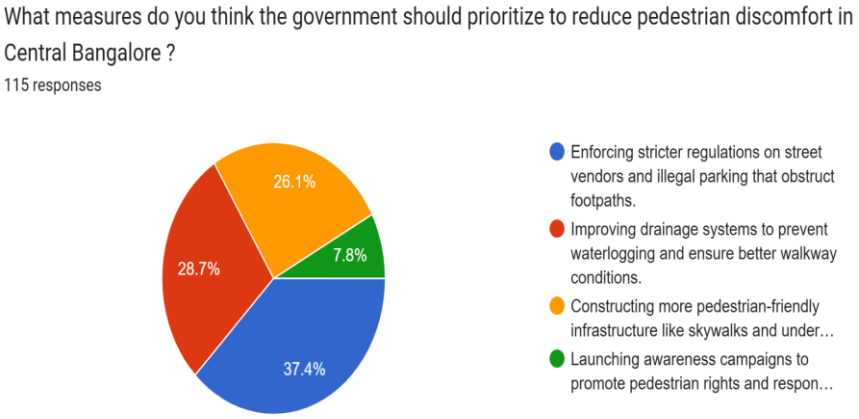
The analysis of the data indicates that the cleanliness of pathways in Central Bangalore is a concern for many pedestrians. Only 13% of respondents believe that the pathways are well-maintained, suggesting that clean walkways are not the norm. The majority (47.8%) feel that while the pathways are somewhat clean, there is room for improvement. Additionally, 30.4% report that pathways are often littered and not cleaned regularly, while 8.7% describe them as very dirty and poorly maintained. These findings highlight the need for more consistent cleaning efforts and better waste management to ensure a cleaner and more hygienic pedestrian environment.

Identify Areas for Improvement and Policy Recommendations

12. What measures do you think the government should prioritize to reduce pedestrian discomfort in Central Bangalore?

Answers	No. Of Respondents	Percentage
Enforcing stricter regulations on street vendors and illegal parking that obstruct footpaths.	43	37.4

Improving drainage systems to prevent waterlogging and ensure better walkway conditions.	33	28.7
Constructing more pedestrian-friendly infrastructure like skywalks and underground walkways.	30	26.1
Launching awareness campaigns to promote pedestrian rights and responsible road use.	9	7.8

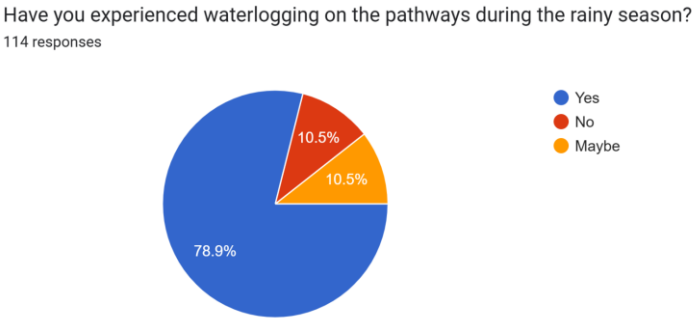


The analysis of the data highlights key measures that respondents believe the government should prioritize to reduce pedestrian discomfort in Central Bangalore. The majority (37.4%) advocate for enforcing stricter regulations on street vendors and illegal parking, indicating that pathway obstructions are a major issue. Additionally, 28.7% emphasize the need for improved drainage systems to prevent waterlogging and maintain better walkway conditions. Another 26.1% support the construction of more pedestrian-friendly infrastructure, such as skywalks and underground walkways, to enhance accessibility and safety. A smaller percentage (7.8%) suggest launching awareness campaigns to promote pedestrian rights and responsible road use. These findings suggest that addressing pathway encroachments, improving infrastructure, and enhancing drainage systems should be key government priorities to improve pedestrian experiences.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

13. Have you experienced waterlogging on the pathways during the rainy season?

Answers	No. Of Respondents	Percentage
Yes	90	78.9%
No	12	10.5%
Maybe	12	10.5%

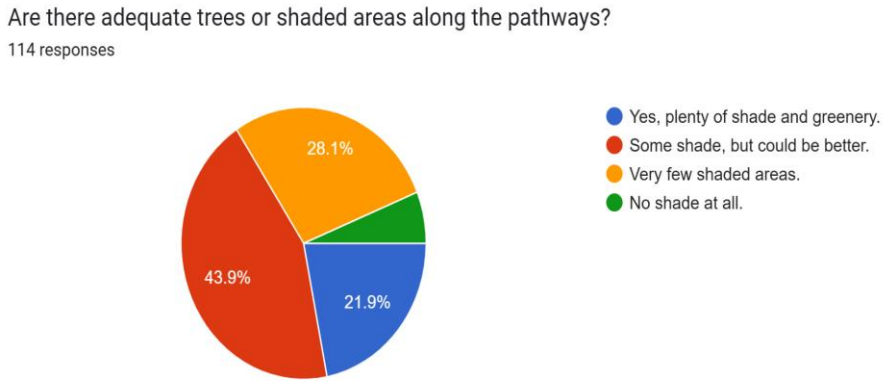


The analysis of the data reveals that waterlogging on pathways during the rainy season is a significant issue in Central Bangalore. A large majority (78.9%) of respondents have experienced waterlogging, indicating that poor drainage systems and inadequate infrastructure contribute to this problem. Only 10.5% of respondents report not facing waterlogging, while an equal percentage (10.5%) are uncertain. These findings suggest an urgent need for improved drainage systems and better pathway maintenance to prevent water accumulation and ensure safer walking conditions during the rainy season.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

14. Are there adequate trees or shaded areas along the pathways?

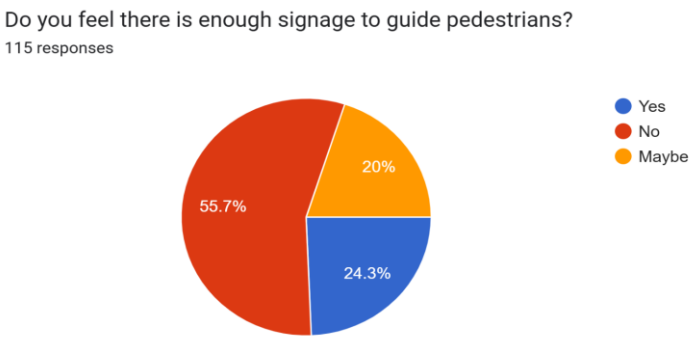
Answers	No. Of Respondents	Percentage
Yes, plenty of shade and greenery.	25	21.9%
Some shade, but could be better.	50	43.9%
Very few shaded areas.	32	28.1%
No shade at all.	7	6.1%



The data indicates that shaded pathways in Central Bangalore are limited. Only 21.9% of respondents find plenty of shade and greenery, while 43.9% feel some areas have shade but need improvement. Additionally, 28.1% report very few shaded areas, and 6.1% say there is no shade at all. These findings highlight the need for more trees and shaded spaces to enhance pedestrian comfort.
Examine Safety, Lighting, and Infrastructure for Pedestrians

15. Do you feel there is enough signage to guide pedestrians?

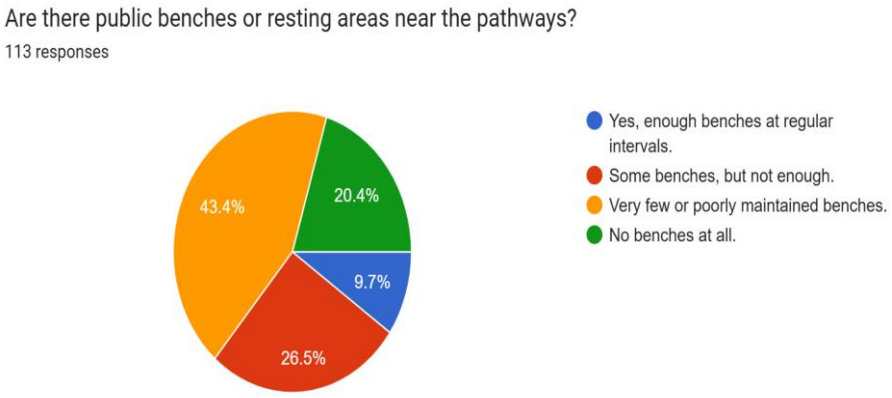
Answers	No. Of Respondents	Percentage
Yes	28	24.3%
No	64	55.7%
Maybe	23	20%



The data reveals that pedestrian signage in Central Bangalore is inadequate. While 24.3% of respondents feel there is enough signage, the majority (55.7%) believe it is lacking. Additionally, 20% are uncertain, suggesting inconsistency in signage placement. These findings highlight the need for improved and more visible pedestrian guidance to enhance navigation and safety.
Examine Safety, Lighting, and Infrastructure for Pedestrians

16. Are there public benches or resting areas near the pathways?

Answers	Respondents	Percentage
Yes, enough benches at regular intervals.	11	9.7%
Some benches, but not enough.	30	26.5%
Very few or poorly maintained benches.	49	43.3%
No benches at all.	23	20.4%

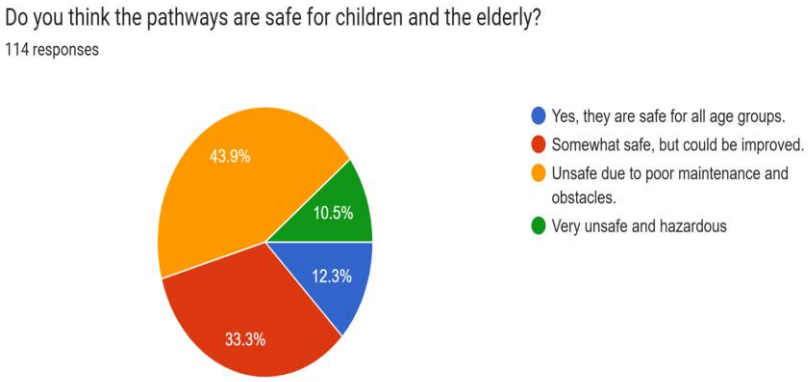


The data indicates a lack of adequate public benches or resting areas along the pathways in Central Bangalore. Only 9.7% of respondents feel there are enough benches at regular intervals, while 26.5% believe there are some but not enough. A significant 43.3% report that benches are either very few or poorly maintained, and 20.4% state there are no benches at all. These findings highlight the need for more well-maintained seating areas to enhance pedestrian comfort and accessibility.
Examine Safety, Lighting, and Infrastructure for Pedestrians

17. Do you think the pathways are safe for children and the elderly?

Answers	No.Of Respondents	Percentage
Yes, they are safe for all age groups.	14	12.3%

Somewhat safe, but could be improved.	38	33.3%
Unsafe due to poor maintenance and obstacles.	50	43.9%
Very unsafe and hazardous	12	10.5%

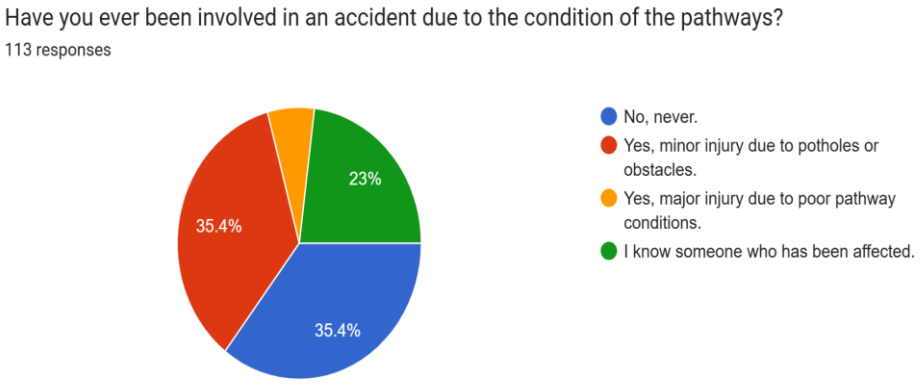


The data indicates that pathways in Central Bangalore may not be adequately safe for children and the elderly. Only 12.3% of respondents believe they are safe for all age groups, while 33.3% feel they are somewhat safe but need improvement. A significant 43.9% consider them unsafe due to poor maintenance and obstacles, and 10.5% describe them as very unsafe and hazardous. These findings highlight the need for better infrastructure, regular maintenance, and improved accessibility to ensure safer pathways for vulnerable pedestrians.

Examine Safety, Lighting and Infrastructure for Pedestrians

18. Have you ever been involved in an accident due to the condition of the pathways?

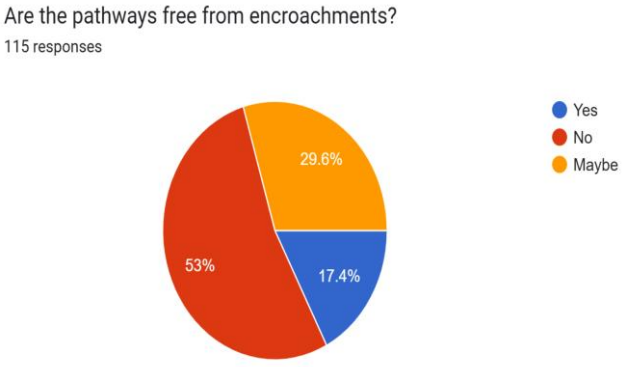
Answers	No.Of Respondents	Percentage
No, never.	40	35.4%
Yes, minor injury due to potholes or obstacles.	40	35.4%
Yes, major injury due to poor pathway conditions.	26	6.2%
I know someone who has been affected.	7	23%



The data reveals that pathway conditions in Central Bangalore have led to accidents for many pedestrians. While 35.4% of respondents have never faced an accident, an equal percentage (35.4%) have suffered minor injuries due to potholes or obstacles. Additionally, 6.2% have experienced major injuries, and 23% know someone affected by poor pathway conditions. These findings highlight the urgent need for improved maintenance and safer pedestrian infrastructure to prevent accidents and enhance public safety.
Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

19. Are the pathways free from encroachments?

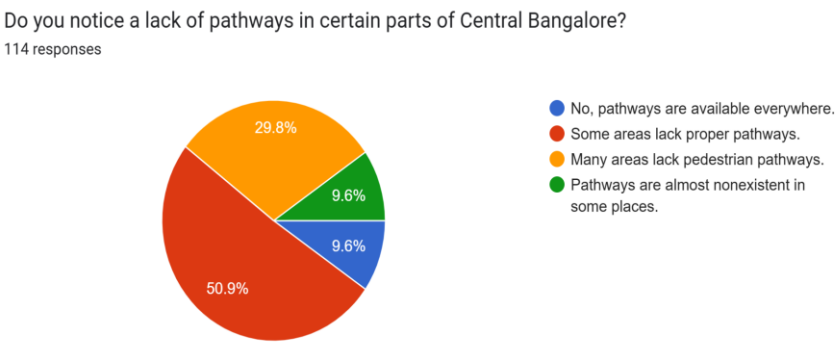
Answers	No.Of Respondents	Percentage
Yes	20	17.4%
No	61	53%
Maybe	34	29.6%



The data reveal that pathway encroachments in Central Bangalore are a significant issue. Just 17.4% of the sample respondents report the pathways to be free from encroachments, while the majority (53%) state that they are not. The remaining 29.6% are uncertain, pointing to inconsistency in pathway accessibility. The findings demand more enforcement against encroachments to ensure obstruction-free and safer pathways for pedestrians.
Assess the overall condition and accessibility of pathways in Central Bangalore

20. Do you notice a lack of pathways in certain parts of Central Bangalore?

Answers	No.Of Respondents	Percentage
No, pathways are available everywhere.	11	9.6%
Some areas lack proper pathways.	50	50.9%
Many areas lack pedestrian pathways.	34	29.8%
Pathways are almost nonexistent in some places.	11	9.6%

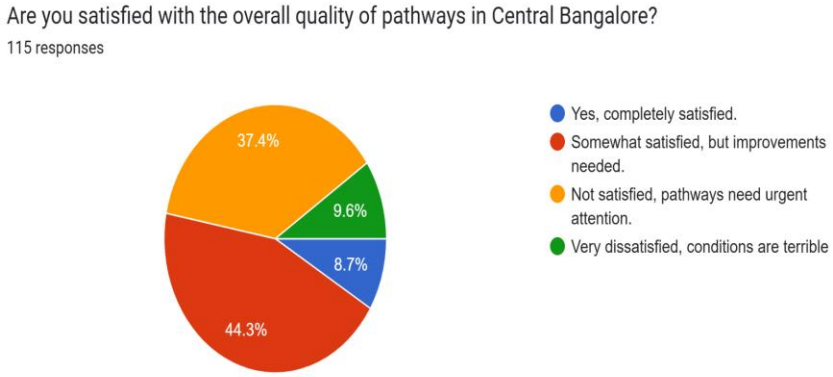


The data shows that pedestrian pathways in Central Bangalore are inconsistent, with only 9.6% stating they are available everywhere. A majority (50.9%) report missing pathways in some areas, while 29.8% and 9.6% note a lack in many or nearly all places, respectively. This highlights the need for improved pedestrian infrastructure.

Assess the Overall Condition and Accessibility of Pathways in Central Bangalore

21. Are you satisfied with the overall quality of pathways in Central Bangalore?

Answers	No.Of Respondents	Percentage
Yes, completely satisfied.	10	8.7%
Somewhat satisfied, but improvements needed.	51	44.3%
Not satisfied, pathways need urgent attention.	43	37.4%
Very dissatisfied, conditions are terrible	11	9.6%

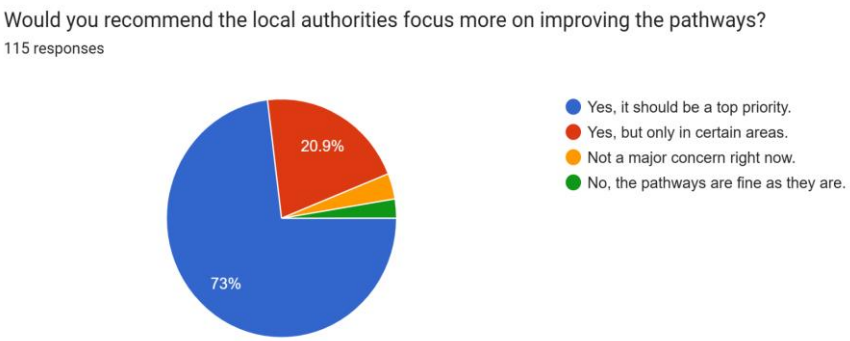


The data indicates general dissatisfaction with the quality of pathways in Central Bangalore. Only 8.7% of respondents are completely satisfied, while 44.3% feel some improvements are needed. A significant 37.4% are not satisfied and believe pathways require urgent attention, and 9.6% are very dissatisfied. These findings highlight the need for substantial improvements in pathway infrastructure and maintenance.

Identify Areas for Improvement and Policy Recommendations

22. Would you recommend the local authorities focus more on improving the pathways?

Answers	No.Of Respondents	Percentage
Yes, it should be a top priority.	84	73%
Yes, but only in certain areas.	24	20.9%
Not a major concern right now.	4	3.5%
No, the pathways are fine as they are.	3	2.6%



The data reflects widespread dissatisfaction with the quality of pathways in Central Bangalore. Only 8.7% of respondents are completely satisfied, while 44.3% believe improvements are needed. Additionally, 37.4% feel pathways require urgent attention, and 9.6% are very dissatisfied with their condition. These findings highlight the need for significant upgrades in pedestrian infrastructure and maintenance.

ANALYSIS

The research study titled "Pathway Anguish in Central Bangalore" delves into the demographic profile of the surveyed population to uncover the diverse perspectives and lived experiences related to pedestrian pathways in the city. A detailed demographic analysis helps to contextualize the nature of public dissatisfaction and the specific needs of different population segments.

One of the most prominent observations is the dominance of young adults within the respondent pool, particularly those in the 18–25 age bracket. This age group comprises a significant portion of the participants, highlighting a growing awareness and concern among younger citizens regarding urban mobility and public infrastructure. Their active engagement suggests that issues related to walkability, safety, and convenience are becoming increasingly important to Bangalore's younger population, who often rely on walking and public transportation for their daily commute.

In addition to young adults, the inclusion of respondents from age groups 26–30, 31–40, 41–50, and 51–60 provides a comprehensive cross-generational perspective. This age-wise distribution allows for a more nuanced understanding of how pathway conditions impact people at different life stages—from working professionals and parents to older adults who may face greater physical challenges. Each group brings a unique lens to the conversation, enriching the survey's insights and emphasizing the need for diverse planning approaches.

Gender analysis within the survey also yields revealing patterns. A striking 64.3% of respondents identified as female, compared to 35.7% male. This gender disparity in participation offers valuable insights into how pedestrian infrastructure is experienced differently across genders. For women, concerns about safety—especially during nighttime—are more pronounced, often influenced by inadequate lighting, isolated stretches, and a lack of visible security measures. These gendered experiences underscore the importance of designing pedestrian pathways that are not only functional but also inclusive and safe for all.

By examining the intersections of age and gender in relation to pedestrian pathway issues, this research builds a more integrated and empathetic understanding of how public infrastructure serves—or fails to serve—its users. It reveals that problems like irregular maintenance, encroachments, narrow walkways, waterlogging, and poor lighting are not just physical inconveniences but barriers to mobility, equity, and public well-being.

Ultimately, "Pathway Anguish in Central Bangalore" advocates for targeted, data-driven urban planning interventions that take into account the specific needs of diverse demographic groups. By amplifying these voices, the study calls for comprehensive reforms that can transform Central Bangalore into a more accessible, walkable, and inclusive urban environment for all its residents

LIMITATIONS

The "Pathway anguish" in Bangalore refers to a range of issues related to urban pathways, particularly the challenges faced by pedestrians. One key limitation of the research is the age bias, as it primarily focuses on young adults (18-25). This narrow representation may not fully capture the experiences of other age

groups, such as older adults or children, who may have different mobility needs or face distinct challenges. Another limitation is the study's geographic scope, which is centered on Bangalore's core areas. This focus may not adequately represent the experiences of individuals from peripheral regions or suburbs, where pedestrian infrastructure might be of significantly lower quality or availability. The disparity in infrastructure across different areas could lead to an incomplete understanding of the overall pedestrian experience in the city.

The research may also suffer from a limited sample size or lack of diversity. If the participants are not sufficiently representative in terms of socioeconomic background, gender, or other demographic factors, the findings may fail to accurately reflect the pedestrian challenges faced by the entire city's population.

Urban infrastructure variability is another concern. While central parts of Bangalore might have relatively well-maintained pathways, peripheral or rapidly developing areas may struggle with poor or inconsistent pedestrian facilities. The study might not fully address these differences, leading to an uneven analysis of the city's infrastructure challenges.

Another potential issue is the reliance on self-reported data. Individuals may express their frustrations or experiences in a subjective manner, which could introduce biases in the study. This approach might also overlook broader socio-political factors or government priorities that influence the condition of pedestrian pathways.

The temporal context of the research could also be a limitation. If the study is conducted at a specific point in time, it may not account for ongoing changes in infrastructure or urban mobility patterns. As a result, the findings may become outdated or fail to capture evolving pedestrian experiences.

Lastly, the research may primarily focus on certain pathway issues, such as traffic congestion or poor maintenance, without considering broader urban planning concerns. Factors like insufficient green spaces, environmental conditions, and the integration of public transport are also crucial in shaping pedestrian experiences but might not receive adequate attention in the study.

CONCLUSION

The condition of pedestrian infrastructure in Central Bangalore has now reached such a critical level, as is revealed through the findings of this research. The findings of the extensive surveys and field observations reflect a pervasive sense of dissatisfaction among the general public, and particularly the young adults and women who constitute a large proportion of the respondents. This is on account of a set of interrelated issues that cumulatively compromise both the usability and safety of pedestrian walkways in the region.

A very common theme throughout the responses is the absence of proper basic infrastructure elements such as footpath surface, width, and lighting. Footpaths tend to be narrow, uneven, and poorly surfaced, making them difficult to utilize—not only for average pedestrians but especially for individuals with disabilities, the elderly, and parents with kids. In addition, sporadic maintenance causes cracked pavements, broken tiles, and overgrown vegetation, all of which result in unsafe and uncomfortable walking conditions.

Safety concerns are especially heightened during nighttime. The prevalence of absence of streetlights and directional or warning signage on the majority of pedestrian routes makes them feel unsafe, particularly for women, children, and older persons. Such a perception of vulnerability curtails freedom of movement, thereby reducing the effectiveness of the city infrastructure in supporting an inclusive and accessible city environment. The absence of surveillance systems or regular patrolling by civic agencies also contributes

to this issue.

Encroachment by vendors, temporary commercial setups, and parked vehicles also decrease the usability of footpaths. Pedestrians at most locations are forced to walk on busy roads, endangering their lives every moment. Inefficient drainage systems that cause frequent waterlogging during monsoon months render many of the footpaths unusable. The lack of even basic amenities such as public seating, shade, and clean waiting areas only adds to the discomfort of pedestrians, especially those with mobility issues or illnesses. Although there are a few pockets in Central Bangalore that are experiencing urban revitalization and improved walkability because of pilot projects or ad hoc municipal efforts, such cases remain the exception rather than the rule. The broader context is a bleak reality where pedestrian infrastructure is an afterthought and not a basic element of urban planning.

The need for an inclusive, multi-pronged approach is both urgent and undeniable. A long-term urban planning vision needs to put foremost on its agenda the widening and flattening of footpaths, eliminating obstructions and designing for heterogeneous users. Regular maintenance schedules need to be implemented, supported by active community involvement and feedback mechanisms. Improved street lighting, drainage facilities, accessible signage, and public amenities like benches and shaded rest spots are crucial to improving walkability and promoting inclusiveness.

Additionally, strict policing must be done to prevent encroachments and maintain the intended purpose of the pedestrian zones. This could involve collaborative efforts of the traffic police, municipal corporations, and local vendors to identify planned vending zones that do not impede pedestrian traffic. In conclusion, this study underscores the urgent call for systemic change and long-term government commitment toward transforming Central Bangalore into a walkable urban center. By pursuing an integrated, equity-based strategy for pedestrian infrastructure, the city can fulfill its vision of a safer, more accessible, and more inclusive space for all its citizens. Only through diligent planning, firm implementation, and continuous community participation can we render walking in Bangalore not just a necessity but a pleasure.

REFERENCES

1. Goel, R. (2021). A new model to estimate pedestrian deaths from speed-related interventions. Traffic Injury Prevention, 22(4), 330–335. https://doi.org/10.1080/15389588.2021.1908544
2. Kudryavtsev, A. V., Nilssen, O., Lund, J., Grjibovski, A., & Ytterstad, B. (2012). Explaining reduction of pedestrian–motor vehicle crashes in Arkhangelsk, Russia, in 2005–2010. International Journal of Circumpolar Health, 71(1). https://doi.org/10.3402/ijch.v71i0.19107
3. Matsui, Y., & Oikawa, S. (2019). Situational characteristics of fatal pedestrian accidents involving vehicles traveling at low speeds in Japan. Traffic Injury Prevention, 20(sup1), S1–S6. https://doi.org/10.1080/15389588.2019.1587166
4. Matsui, Y., Hitosugi, M., Doi, T., Oikawa, S., Takahashi, K., & Ando, K. (2013). Features of pedestrian behavior in car-to-pedestrian contact situations in near-miss incidents in Japan. Traffic Injury Prevention, 14(sup1), S58–S63. https://doi.org/10.1080/15389588.2013.796372
5. Narváez, Y. V., Parra Sierra, V., Peña Cárdenas, F., Ruíz Ramos, L., Zamorano González, B., Vargas Martínez, J. I., & Monreal Aranda, O. (2019). Road risk behaviors: Pedestrian experiences. Traffic Injury Prevention, 20(3), 303–307. https://doi.org/10.1080/15389588.2019.1573318
6. Parkin, J., Crawford, F., Flower, J., Alford, C., Morgan, P., & Parkhurst, G. (2022). Cyclist and pedestrian trust in automated vehicles: An on-road and simulator trial. International Journal of Sustainable Transportation, 17(7), 762–774. https://doi.org/10.1080/15568318.2022.2093147

7. Pelet-Del-Toro, N., Ramos-Meléndez, E. O., García-Rodríguez, O., Mejías, J. P., Rodríguez-Ortiz, P., & Shiri, R. (2019). Morbidity and mortality patterns of pedestrian injuries by age at the Puerto Rico Trauma Hospital from 2000 to 2014. Cogent Medicine, 6(1). https://doi.org/10.1080/2331205X.2019.1600211
8. Sahandifar, P., Makoundou, C., Fahlstedt, M., Sangiorgi, C., Johansson, K., Wallqvist, V., & Kleiven, S. (2022). A rubberized impact-absorbing pavement can reduce the head injury risk in vulnerable road users: A bicycle and a pedestrian accident case study. Traffic Injury Prevention, 23(5), 315–320. https://doi.org/10.1080/15389588.2022.2067990
9. Solomon, H. (2021). Death traps: Holes in urban India. Environment and Planning D: Society and Space, 39(3), 423–440. https://doi.org/10.1177/0263775821989700
10. Volker, J. M. B., & Handy, S. (2021). Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: A review of the evidence. Transport Reviews, 41(4), 401–431. https://doi.org/10.1080/01441647.2021.1912849
11. William, A., Kolawole, O. T., Comfort, O. A., & Francis, A. (2021). Driver compliance and pedestrian safety at zebra crossings in the Cape Coast Metropolis, Ghana. Urban, Planning and Transport Research, 9(1), 464–478. https://doi.org/10.1080/21650020.2021.1984984
12. Fang, K., Wang, X., Chen, L., Zhang, Z., & Furuya, N. (2019). Research on the correlation between pedestrian density and street spatial characteristics of commercial blocks in downtown area: A case study on Shanghai Tianzifang. Journal of Asian Architecture and Building Engineering, 18(3), 233–246. https://doi.org/10.1080/13467581.2019.1627215