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An Insight into Women's Perception of Safety in Public Transport – A Study of Metro Commuters in Hyderabad, India

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ABSTRACT

In India's fast urbanizing cities, women's safety on public transit is a major concern. Although transport systems like Hyderabad Metro Rail Ltd. provide speed, affordability and reach, gaps in infrastructure, security, and institutional responsiveness frequently shape the commuter experience for women. The purpose of this study is to gain insights on safety perception of urban women with respect to public transport in Hyderabad, India. This study employs a grounded research methodology to find out the structural and sociocultural barriers preventing women from fully utilizing safe public transportation. A triangulated data collection technique was used to collect three sets of data, a quantitative survey, in-depth interviews with the commuters and in-depth interviews with the administrative authorities. The researchers used a self-constructed questionnaire and administered survey on 410 women metro commuters. In order to collect qualitative data, in-depth face-to-face interviews were conducted with 20 women metro commuters using a semi-structured interview schedule. The third set of data was collected from Hyderabad Metro and Telangana Police authorities in order to gain insights on the existing safety system and mechanism developed by the administrative systems. The findings indicate a strong foundation in the authorities' efforts to ensure women safety but also highlights critical gaps in implementation, awareness, and responsiveness. The study gives practical, strategic suggestions for community organizations, metro administrators, and legislators. These consist of gender-sensitive staff training, digital engagement, infrastructure improvements, and participatory safety audits. Developing metro systems that are genuinely safe and inclusive for women is essential for equitable urban development and goes beyond transit policy.

Keywords: urban women safety; public transport; metro system; metro commute

INTRODUCTION AND BACKGROUND

In India's fast urbanizing cities, women's safety on public transit is a major concern. Although transport systems like Hyderabad Metro Rail Ltd. provide speed, affordability and reach, gaps in infrastructure, security, and institutional responsiveness frequently shape the commuter experience for women. Using information from 410 survey responses, in-depth commuter interviews and inputs from Metro officials and Women Safety Wing of Telangana Police, this paper offers an evidence-based analysis of women's safety in metro transit.
Metro systems have become essential arteries for urban mobility as Indian cities expand. For women who frequently balance work, education, and home duties, metros provide cheap, quick, and consistent travel. Personal safety worries—especially during off-peak hours or in remote metro areas—can, however, restrict their mobility and engagement in public life.

1.2. Women Safety in Public Transport – A Global Perspective

According to International Transport Forum (ITF, 2018), public transport is an essential service, and yet the access of many women and girls to safe public transport options is threatened by the potential of being assaulted or victimised. Worse still, the freedom of travel provided by transit has been abused by those who are engaged in human trafficking. These threats exist in small towns and large cities, and in wealthy nations as well as developing ones; and universal problems require global action.

1.3. Objectives of the Study

The current study is designed in this direction with the following specific research objectives:

- To gain insights on how metro systems affect urban women's perception and experience of safety.

- To identify if there are any deficiencies in institutional response, reporting systems, and infrastructure.
- To make recommendations to policy-makers and stakeholders

LITERATURE REVIEW

A review of research carried out in the area of women safety in metro transport systems across the world reveals both challenges and global best practices in this context. In an article titled "Gender-based violence against women users of public transport in Saltillo, Coahuila, Mexico", published in Journal of Gender Studies, Infante and Boyer argued that women can experience myriad wide-reaching effects beyond the event itself that include not only limits on their mobility, but also financial and emotional repercussions (Infante and Boyer, 2021).

A US based study carried out in 2013 compared commuter safety perception between Washington DC and Chicago metro systems. It was found that participants rated the Washington DC Metro system significantly higher for overall personal safety compared to Chicago. Another study carried out in Germany in concluded that safety on public transport is a topic that concerns many female public transport users in Berlin and impacts their travel behavior to a point where certain stations or areas are avoided out of fear of victimization especially at night (Arnesen et al, 2021). The study also found that many factors of the social and physical environment seem to impact the female public transport user's perception of safety. The issue of female's perceived safety on public transport cannot be solved by physical interventions solely.

A combination of different factors and even the area surrounding the station influence the participants feeling of safety. In a recent study in London conducted in 2024, 200 university students were surveyed about their perception of safety in public transport (Pisier-Caillet & Ristea, 2024). The results indicate that the presence of CCTV alone is insufficient to significantly improve feelings of safety among public transportation users. These findings suggested enhancing perceived safety in public transportation requires more than just the implementation of security measures.

It is essential to inform and educate the public about actual crime rates, existing security measures, and the importance of crime reporting.Seoul's Female-only passenger carriages in Seoul is a move designed to help protect female passengers from possible sexual harassment. South Korea is testing out an AI-based gender detector, and its pilot program will be held in the women's bathroom of a metro station (Mosher, 2023). Table-1 below draws a comparison between the global best practices and Hyderabad Metro practices in the context of women safety.

Global Best Practices	Hyderabad Metro
Women-only coaches in Tokyo, Seoul, and Dubai improve psychological comfort and reduce harassment.	Women-only coaches are available. However, men also encroach into women coaches frequently.
Mobile apps and campaigns (e.g., 'Report It to Stop It' in London, Seoul's safety apps) for easy reporting of harassment.	Mobile app is available. SHE Teams patrol but are not directly linked with metro operations.
Extensive CCTV coverage in Singapore, Hong Kong, and London ensures monitoring and quick action.	CCTV cameras are installed at stations and in trains, though monitoring quality and response speed vary.
Platform screen doors in Seoul prevent platform accidents and increase security.	No platform screen doors currently in place.
Dedicated women-and-children cabins in Dubai, strictly enforced with fines.	Ladies coaches are available. However, no strict fines implemented to men entering these coaches.
Well-publicized public campaigns and signage in Tokyo, Singapore, and London create awareness and social deterrents.	Awareness campaigns inside metro premises are available but still need to achieve wide awareness.
Emergency intercoms, help points, and presence of staff in all international metros like Singapore and London.	Emergency communication systems and nodal officers exist, but staff presence is inconsistent across stations.

Table 1

A comparison of global best practices with Hyderabad Metro Rail system with respect to Women Safety

The review of literature in the area of women safety in public transport reveals that it has been an area of research interest across the globe. However, there is no specific study carried out on women's safety perception with respect to Metro commute in Hyderabad. The current study is an attempt to address this gap.

Further, as revealed in the above table, Hyderabad Metro is largely in line with the global best practices in the area of women safety. However, it is also significant to know the implementation of these practices and safety perception of women commuters to understand the effectiveness of these safety initiatives. It is also important to identify any gaps between safety initiatives by authorities and perceived safety of women commuters so as to make recommendations.

2. Methodology: The current study is of exploratory type with an aim to explore safety perception and awareness of women metro commuters of Hyderabad on one hand and the public initiatives and interventions on the other. The study adopted a triangulated grounded research approach to achieve the research objectives. The Grounded Theory refers to a methodology used **in**qualitative studies, where inductive method is used to develop theory from the primary data collected rather than testing a hypothesis (Glaser and Strauss, 1967). A mixed approach of data collection was employed using various primary and secondary sources of data. Primary data was collected using both qualitative and quantitative approaches using the following techniques.

Quantitative Data: To collect quantitative data, a survey questionnaire was constructed using Likert scale and shared with experts for face validation. Employing simple random sampling technique, the survey was administered on 410 metro rail women commuters across Hyderabad.
Qualitative Data: In addition to the quantitative data, in-depth face-to-face interviews were conducted with 20 women metro commuters. A semi-structured interview schedule was constructed to be used as an instrument in conducting these interviews. The purpose of in-depth interviews is to gain deeper insights on the safety and reporting perceptions.

Expert interviews: In addition to the above two techniques, interviews with Hyderabad Metro Rail and Women Safety wing of Telangana Police were also conducted to understand various initiatives taken by the authorities in the direction of women safety in Hyderabad.

3. Data Analysis and Interpretation:
The data collected through each of the above techniques was analysed, triangulated and interpreted to draw meaningful insights. A brief report of it with respect to most significant parameters is given hereunder.

3. Metro Safety Usage Patterns and Perceptions
3.1 Metro as a Primary Transport Mode
Most respondents reported regular to occasional metro usage, affirming its popularity among women. The qualitative data analysis reinforces this while daytime hours being identified as the peak commute time.

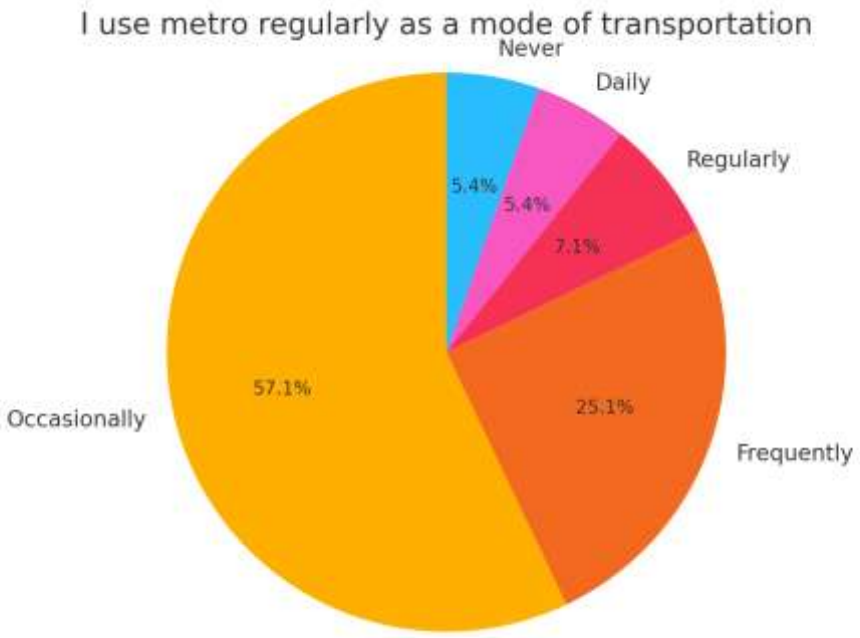

Fig 1: Metro usage pattern

3.2 Safety Perception
Over 70% of women reported feeling safe while using metro services, attributing it to cleanliness, crowd presence, and CCTV surveillance. However, perceived safety dropped significantly during night-time or in less busy stations. It was also reported by interviewees that they faced inappropriate behaviour occasionally.

A majority of participants felt safe while traveling, especially during the daytime. However, safety concerns arise at night and during peak hours due to overcrowding and occasional inappropriate behavior.

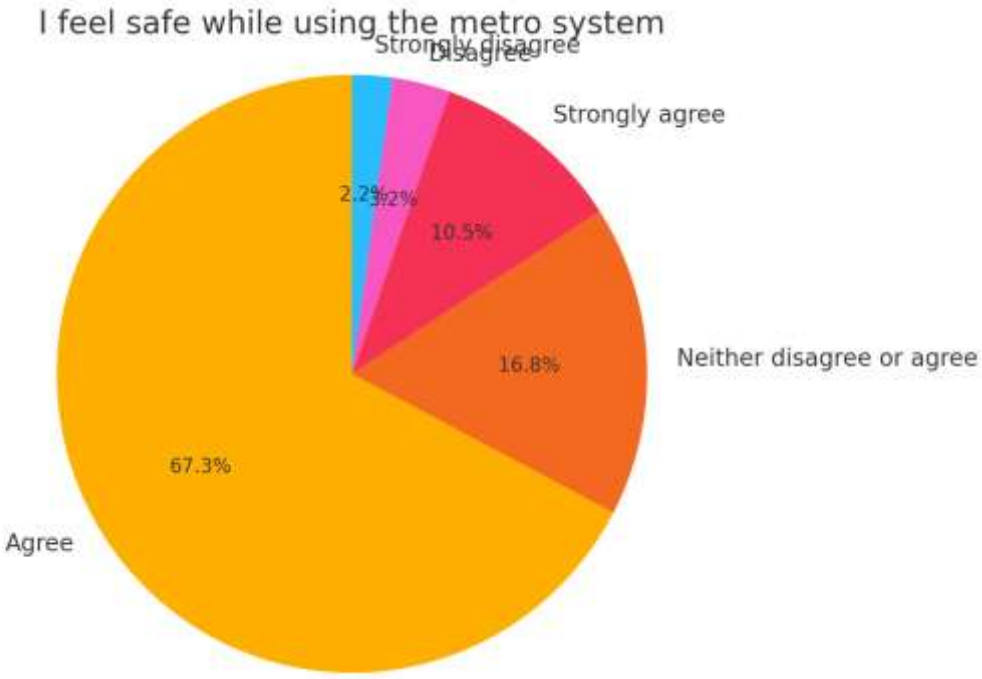

Fig 2: Safety perception

3.3 Time-based Safety Concerns

Evening and night rides emerged as periods of heightened vulnerability. Respondents cited poor lighting in approach roads, minimal staff presence, and low commuter density as reasons.

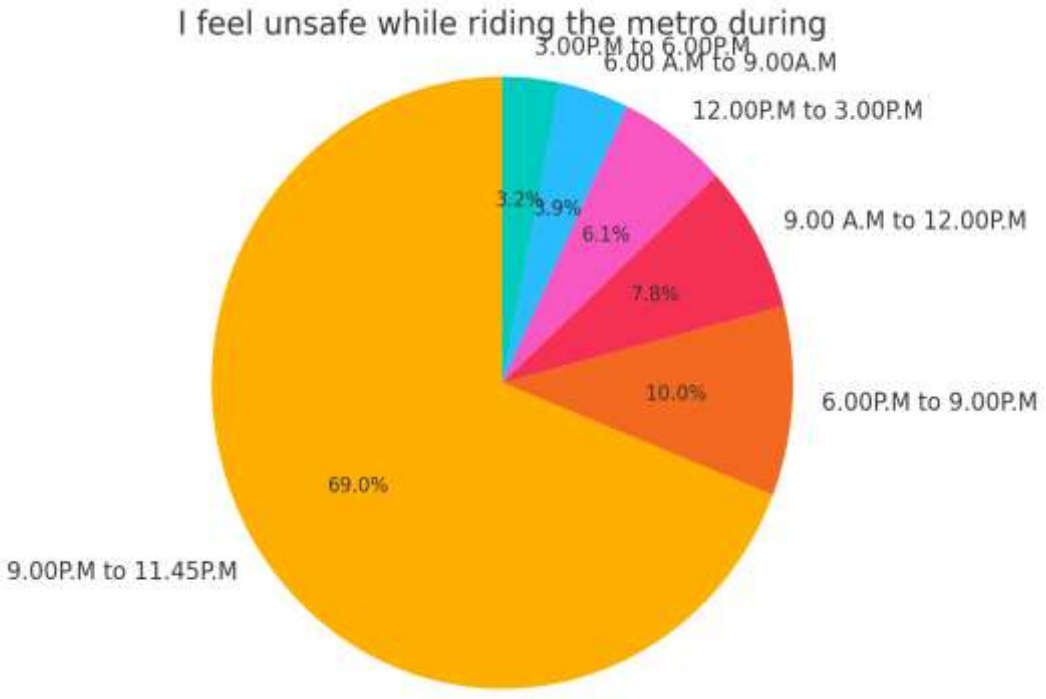

Fig 3: Time-based safety perception

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4. Challenges Identified Through Triangulated Analysis

4.1 Underreported Harassment

About 11% of respondents admitted to experiencing some form of harassment, including groping and verbal abuse. Yet only a fraction reported incidents to authorities.

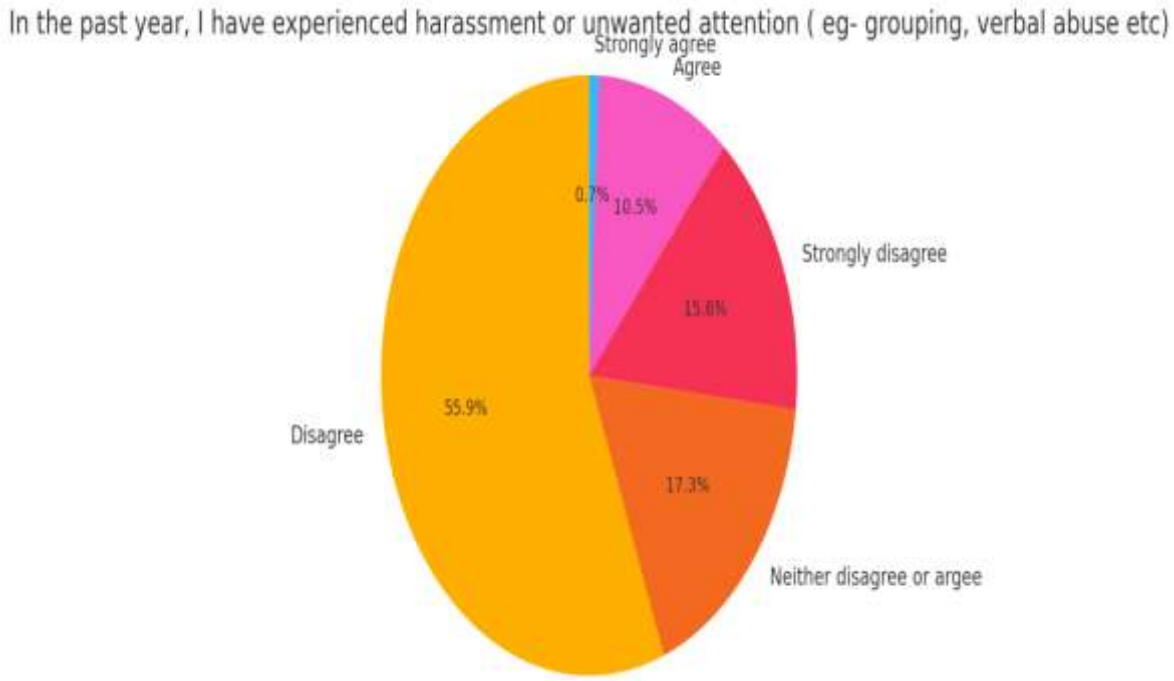

Fig 4: Harassment Experience

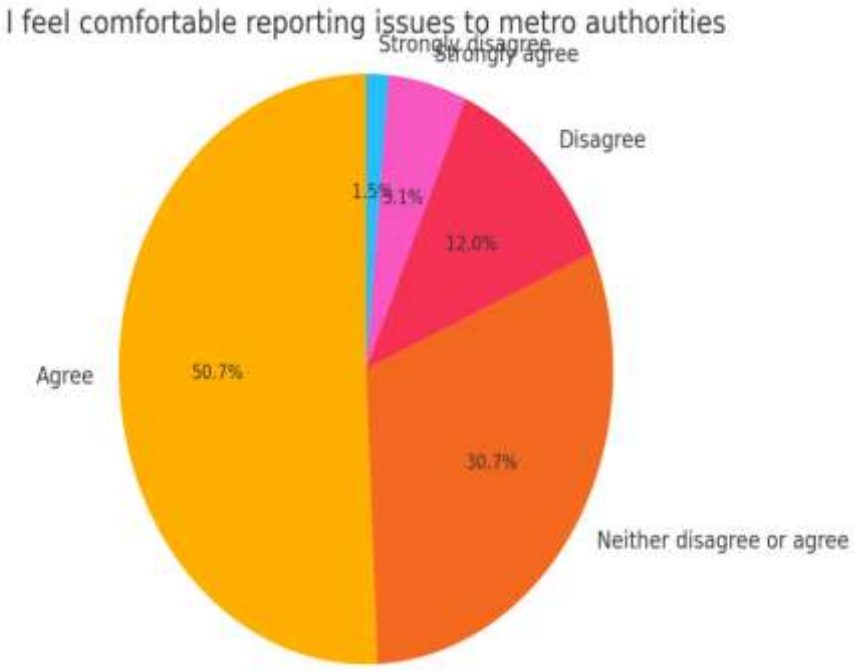

Fig 5: Reporting Hesitation

4.2 Awareness Gaps in Safety Mechanisms

Less than half of respondents were aware of the T-SAFE app and helpline numbers. Of those aware, only 12% had ever used them.

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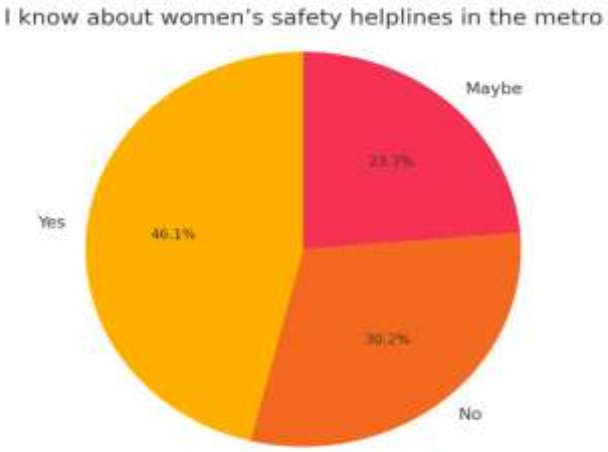

Fig 6: Awareness of Safety Mechanisms

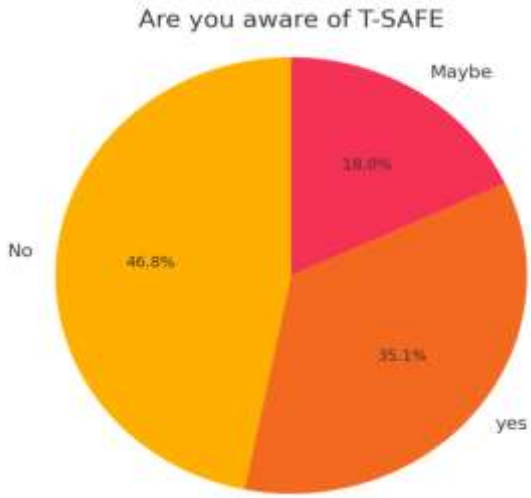

Fig 7: Awareness of T-SAFE App

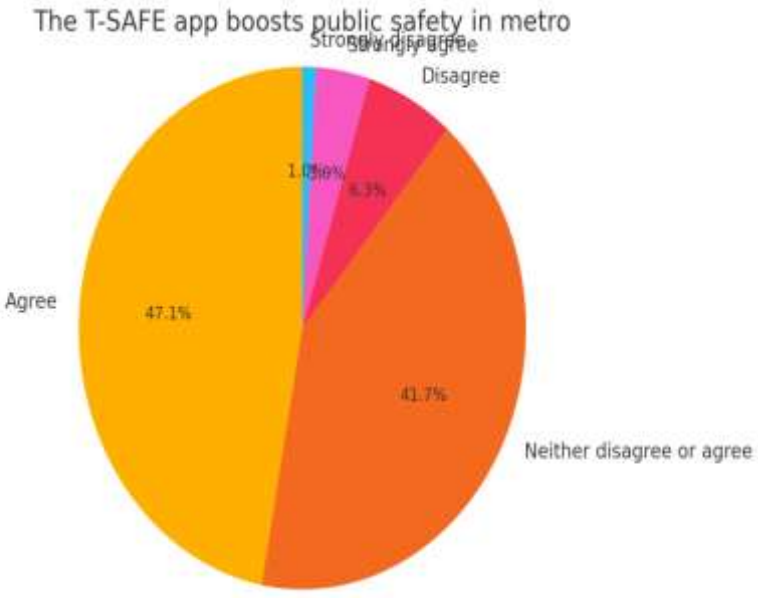

Fig 8: Perception of T-SAFE Effectiveness

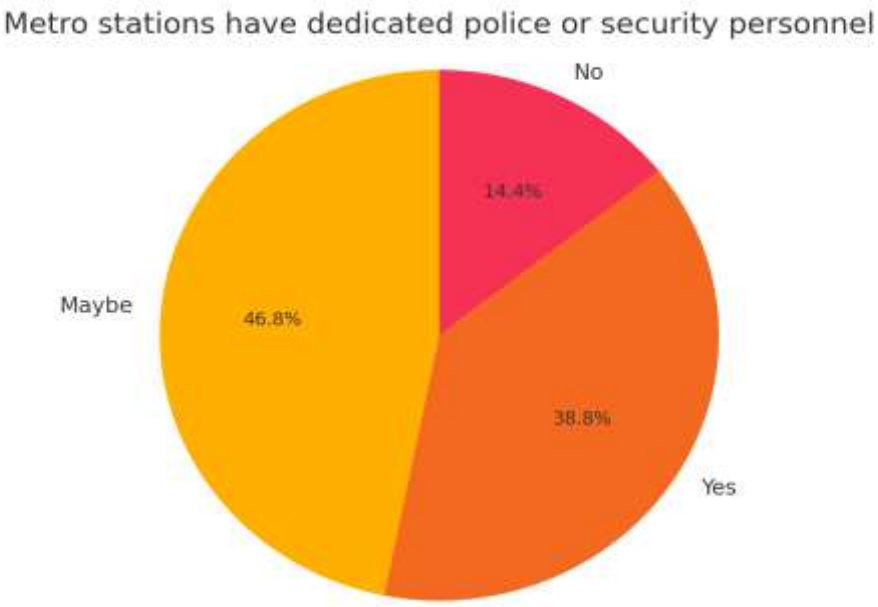

Fig 9: Perception of Security Presence

4.3 Reluctance to Report

Respondents feared retaliation, apathy, or lack of privacy in reporting. There's a general lack of faith in follow-up actions (Refer Fig 5). A 27-year old female commuter said *"Even if we want to report, we don't know who to talk to. The staff are not always around."*

4.4 Perception of Staff Response

While less than 50% of the respondents felt the staff responds appropriately to any reporting on safety issues, around 42% did not give a definite perception. Around 10 % felt the staff does not respond appropriately. Only 41% felt metro staff were adequately trained or responsive to safety complaints.

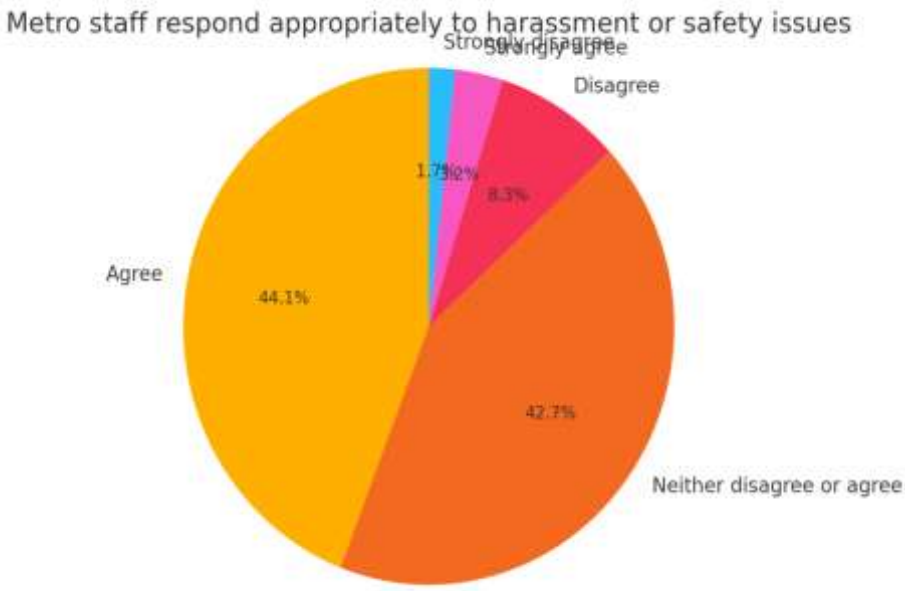

Fig 10: Perception of Staff Response

There was a mixed response on the availability of staff. Some participants opined there is enough staff, while others expressed inadequacy of police presence.

A participant said *"We lack dedicated personnel for women's issues. There's no formal protocol if someone complains except to call security."*The participants suggested deploying security or police personnel at entrance and lift areas.

5.5. Institutional Initiatives and Implementation Gaps
Hyderabad Metro has introduced safety initiatives such as:

- Women-only coaches
- Partnership with She Teams (local women safety force)
- CCTV Surveillance

However, there are some challenges as:

- Budgetary constraints limit full-time staff deployment
- Low adoption of the T-SAFE app
- Lack of anonymous reporting option in T-SAFE app
- Hesitation to report to avoid hassles

"We need behavioural change campaigns, not just apps. Women should feel empowered to speak up." — Metro authority representative

FINDINGS AND DISCUSSION

As mentioned in the methodology section, the study used grounded research approach to achieve the objectives. The Grounded Theory refers to a methodology used in qualitative studies, where inductive method is used to develop theory from the primary data collected rather than testing a hypothesis (Glaser and Strauss, 1967). Using this approach, we have kept analysing the data as and when we collected, which led to the emerging of patterns, themes and concepts naturally from the perceptions and contextual experiences of the participants.

This approach allowed us to synthesize insights from in-depth interviews of women metro commuters, expert perspectives from Hyderabad Metro Rail Ltd and Women Safety wing of Telangana State Police Department and also responses of 410 survey participants. The findings reveal significant gaps between safety perceptions and available safety mechanisms.

6.1 Perception vs. Reality of Safety

It has been found that approximately 70% of the participants reported that they felt safe while commuting by metro. However, the safety perception declined during evenings and least in the late night hours with 6 pm to 11:45 pm felt as the most unsafe time to travel. The reasons quoted for this perception include insufficient visibility of security personnel, deserted platforms and insufficient lighting. It has been learnt from Metro authorities that there is complete CCTV coverage in all the metro stations and coaches. However, the commuters Despite the presence of CCTV systems, only a fraction of commuters believed that there is a continuous and active monitoring system, raising doubts on its effectiveness as a deterrent.

6.2 Underreported Harassment
About 11% of the survey participants have admitted that they have experienced some form of harassment, including men entering ladies' coaches, inappropriate staring, touching during peak hours, groping and verbal abuse. However, there is hesitation to report such incidents. The reasons for reluctance are perception of indifference of staff, fear of confrontation and not being certain of the protocols. Reinforcing these insights, in-depth interviews have also found that women often choose not to confront and suffer silently, especially when they face harassment during rush hours, stations having low staff presence, outside metro stations or at streel level.

6.3 Gaps in Awareness and Usage of Safety Tools
There are multiple safety interventions initiated by both Hyderabad Metro Rail authorities and Telangana Police. A prominent of such initiatives include posting home guards and police personnel, CCTV coverage, emergency call points inside coaches and safety apps. T-Safe is one such app initiated by Telangana Police for women safety during travel. Apart from this, Metro Rail authorities are also working on a separate app called TUTEM (Technologies for Urban Transit to Enhance Mobility and Safe Accessibility).

However, awareness of such safety mechanisms is very low among the commuters. Even those who are aware, don't use it regularly. It is found that T-SAFE app has been downloaded over 44,000 times. However, the actual usage of the app is very low with only about 100 active users on a daily basis.

Though the helpline number is displayed at the metro stations and there used to be announcements at the beginning of metro services, most of the commuters are not aware of such helplines and other safety services.

6.4 Institutional Initiatives and Limitations

Interviews with the experts revealed efforts put in by metro authorities and Telangana Police for women safety. The metro efforts include integration with 'She Teams', women only stations, Expert interviews revealed efforts by metro authorities — including ladies-only coaches, integration with She Teams, and smart surveillance systems. However, funding constraints, insufficient personnel and infrastructural limitations impede comprehensive coverage, especially at the street level. This might create inconsistent commuter experiences.

6.5 Infrastructure and Inclusivity Needs

There is a general emphasis of respondents on poor lighting near entrances and restrooms. Concerns were also raised about limited seating capacity in general and for pregnant and elderly women in particular, some lonely corners of the stations. Some interviewees have also made observations that female staff were absent at stations during nights and not being able to carry self-defence tools due to scanners make them feel unsafe during nights. It is proposed by the participants that the design should be more gender-sensitive, better signage and aggressive promotion of safety mechanisms including helplines and safety apps.

7. Strategic Recommendations

7.1 Infrastructure and Technology

- Improve lighting near restrooms and entry/exit points
- CCTV coverage at street level of metro stations
- Increase visibility of helpline numbers through social media, in addition to posters and announcements
- Launch anonymous reporting tool integrated with metro app

7.2 Staff Training and Deployment

- Conduct gender-sensitization workshops
- Hire more female staff and patrol officers
- Equip station managers with standard protocols for safety response

7.3 Community Engagement

- Run periodic safety awareness drives
- Promote and encourage reporting of incidents
- Collaborate with NGOs and women's groups
- Form Metro Safety Committees including women commuters

7.4 Policy and Data Governance

- Mandate incident documentation and reporting
- Collect and publish monthly safety audits
- Involve academic institutions in continuous research and feedback loops

CONCLUSION

The study finds a strong foundation and policy for women safety in Metro commute. However, it highlights critical gaps in implementation, awareness, and responsiveness. Empowering women commuters requires an ecosystem approach — one that combines infrastructure, education, digital tools, and a commitment to dignity and respect
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