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Register Number: 24BECS196.

Course / Subject: Design Thinking / Problem Discovery and Need Identification Lab.

Institution: Garden City University.

Semester: 4th semester.

Topic : Metro stations experience overcrowding during rush hours.

1. Introduction.

Urban metro systems play a vital role in daily transportation. With increasing population and dependence on public transport, metro stations often experience overcrowding, especially during peak hours. This study aims to understand commuter experiences, identify major pain points, analyze root causes, and explore possible improvements.

2. Methodology.

A Google Form survey titled “**Survey on Metro Station Overcrowding During Rush Hours**” was created.

The form included six sections:

- Basic details of respondents
- Metro usage patterns
- Overcrowding experience
- Emotional and safety impact
- Root causes and suggestions
- Consent for participation

Responses were collected from regular metro users.

3. Key Observations.

- Majority of commuters travel during peak hours (morning and evening).
- Heavy congestion observed at entry gates, platforms, and inside trains.
- Interchange stations experience maximum crowding.
- Long waiting times and difficulty boarding trains are common.
- Movement becomes slow and uncomfortable during rush hours.

4. Pain-Point Analysis.

Category	Identified Pain Points
Functional	Difficulty boarding, long waiting time, congestion
Emotional	Stress, fear, irritation
Systemic	Poor scheduling, limited infrastructure

5. Root Cause Identification.

- Why is overcrowding common?
→ Too many commuters travel simultaneously.
- Why do commuters travel at the same time?
→ Similar office and school timings.
- Why can't current services manage this demand?
→ Limited train frequency and capacity.
- Why hasn't capacity increased?
→ Budget and infrastructure constraints.
- Why do these constraints exist?
→ Rapid urban growth and slow expansion planning.

6. Wicked Problem Understanding.

Overcrowding in metro stations qualifies as a wicked problem because:

- It involves multiple stakeholders with different priorities.
- No single solution can solve it completely.
- Infrastructure improvements require large investments.
- Commuter behavior is difficult to change.
- Demand increases continuously with urban growth.

For instance, increasing train frequency improves comfort but raises operational costs, while infrastructure expansion takes several years.

7. Reflection.

1. What surprised you during the survey?

Many commuters face severe overcrowding daily during rush hours.

2. Which assumption was wrong?

Overcrowding is not only due to passenger numbers but also system issues.

3. How did empathy change your understanding?

It helped understand commuter stress and safety concerns.

4. How will this affect your approach?

I will analyze problems deeply before suggesting solutions.

5. What skills were developed?

Observation, communication, and problem analysis skills.

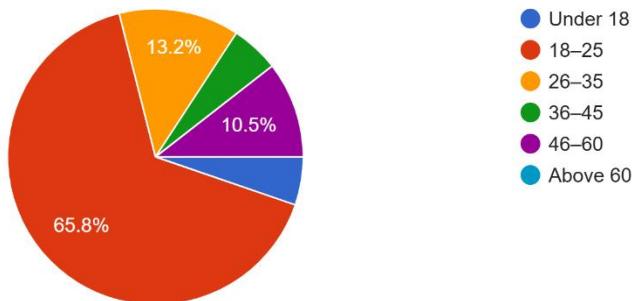
Survey Report:

Passenger	Age Group	Gender	Occupation	Frequency of Use	Comments
PASS001	18-24	Male	Student	Yes	
PASS002	25-34	Female	Office Worker	No	
PASS003	35-44	Male	Engineer	Yes	
PASS004	45-54	Female	Teacher	No	
PASS005	55-64	Male	Manager	Yes	
PASS006	65+	Female	Retired	No	
PASS007	18-24	Male	Student	Yes	
PASS008	25-34	Female	Office Worker	No	
PASS009	35-44	Male	Engineer	Yes	
PASS010	45-54	Female	Teacher	No	
PASS011	55-64	Male	Manager	Yes	
PASS012	65+	Female	Retired	No	
PASS013	18-24	Male	Student	Yes	
PASS014	25-34	Female	Office Worker	No	
PASS015	35-44	Male	Engineer	Yes	
PASS016	45-54	Female	Teacher	No	
PASS017	55-64	Male	Manager	Yes	
PASS018	65+	Female	Retired	No	
PASS019	18-24	Male	Student	Yes	
PASS020	25-34	Female	Office Worker	No	
PASS021	35-44	Male	Engineer	Yes	
PASS022	45-54	Female	Teacher	No	
PASS023	55-64	Male	Manager	Yes	
PASS024	65+	Female	Retired	No	
PASS025	18-24	Male	Student	Yes	
PASS026	25-34	Female	Office Worker	No	
PASS027	35-44	Male	Engineer	Yes	
PASS028	45-54	Female	Teacher	No	
PASS029	55-64	Male	Manager	Yes	
PASS030	65+	Female	Retired	No	
PASS031	18-24	Male	Student	Yes	
PASS032	25-34	Female	Office Worker	No	
PASS033	35-44	Male	Engineer	Yes	
PASS034	45-54	Female	Teacher	No	
PASS035	55-64	Male	Manager	Yes	
PASS036	65+	Female	Retired	No	
PASS037	18-24	Male	Student	Yes	
PASS038	25-34	Female	Office Worker	No	
PASS039	35-44	Male	Engineer	Yes	
PASS040	45-54	Female	Teacher	No	
PASS041	55-64	Male	Manager	Yes	
PASS042	65+	Female	Retired	No	
PASS043	18-24	Male	Student	Yes	
PASS044	25-34	Female	Office Worker	No	
PASS045	35-44	Male	Engineer	Yes	
PASS046	45-54	Female	Teacher	No	
PASS047	55-64	Male	Manager	Yes	
PASS048	65+	Female	Retired	No	
PASS049	18-24	Male	Student	Yes	
PASS050	25-34	Female	Office Worker	No	
PASS051	35-44	Male	Engineer	Yes	
PASS052	45-54	Female	Teacher	No	
PASS053	55-64	Male	Manager	Yes	
PASS054	65+	Female	Retired	No	
PASS055	18-24	Male	Student	Yes	
PASS056	25-34	Female	Office Worker	No	
PASS057	35-44	Male	Engineer	Yes	
PASS058	45-54	Female	Teacher	No	
PASS059	55-64	Male	Manager	Yes	
PASS060	65+	Female	Retired	No	
PASS061	18-24	Male	Student	Yes	
PASS062	25-34	Female	Office Worker	No	
PASS063	35-44	Male	Engineer	Yes	
PASS064	45-54	Female	Teacher	No	
PASS065	55-64	Male	Manager	Yes	
PASS066	65+	Female	Retired	No	
PASS067	18-24	Male	Student	Yes	
PASS068	25-34	Female	Office Worker	No	
PASS069	35-44	Male	Engineer	Yes	
PASS070	45-54	Female	Teacher	No	
PASS071	55-64	Male	Manager	Yes	
PASS072	65+	Female	Retired	No	
PASS073	18-24	Male	Student	Yes	
PASS074	25-34	Female	Office Worker	No	
PASS075	35-44	Male	Engineer	Yes	
PASS076	45-54	Female	Teacher	No	
PASS077	55-64	Male	Manager	Yes	
PASS078	65+	Female	Retired	No	
PASS079	18-24	Male	Student	Yes	
PASS080	25-34	Female	Office Worker	No	
PASS081	35-44	Male	Engineer	Yes	
PASS082	45-54	Female	Teacher	No	
PASS083	55-64	Male	Manager	Yes	
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PASS085	18-24	Male	Student	Yes	
PASS086	25-34	Female	Office Worker	No	
PASS087	35-44	Male	Engineer	Yes	
PASS088	45-54	Female	Teacher	No	
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PASS090	65+	Female	Retired	No	
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PASS092	25-34	Female	Office Worker	No	
PASS093	35-44	Male	Engineer	Yes	
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PASS109	18-24	Male	Student	Yes	
PASS110	25-34	Female	Office Worker	No	
PASS111	35-44	Male	Engineer	Yes	
PASS112	45-54	Female	Teacher	No	
PASS113	55-64	Male	Manager	Yes	
PASS114	65+	Female	Retired	No	
PASS115	18-24	Male	Student	Yes	
PASS116	25-34	Female	Office Worker	No	
PASS117	35-44	Male	Engineer	Yes	
PASS118	45-54	Female	Teacher	No	
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PASS120	65+	Female	Retired	No	
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PASS122	25-34	Female	Office Worker	No	
PASS123	35-44	Male	Engineer	Yes	
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PASS125	55-64	Male	Manager	Yes	
PASS126	65+	Female	Retired	No	
PASS127	18-24	Male	Student	Yes	
PASS128	25-34	Female	Office Worker	No	
PASS129	35-44	Male	Engineer	Yes	
PASS130	45-54	Female	Teacher	No	
PASS131	55-64	Male	Manager	Yes	
PASS132	65+	Female	Retired	No	
PASS133	18-24	Male	Student	Yes	
PASS134	25-34	Female	Office Worker	No	
PASS135	35-44	Male	Engineer	Yes	
PASS136	45-54	Female	Teacher	No	
PASS137	55-64	Male	Manager	Yes	
PASS138	65+	Female	Retired	No	
PASS139	18-24	Male	Student	Yes	
PASS140	25-34	Female	Office Worker	No	
PASS141	35-44	Male	Engineer	Yes	
PASS142	45-54	Female	Teacher	No	
PASS143	55-64	Male	Manager	Yes	
PASS144	65+	Female	Retired	No	
PASS145	18-24	Male	Student	Yes	
PASS146	25-34	Female	Office Worker	No	
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PASS148	45-54	Female	Teacher	No	
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PASS153	35-44	Male	Engineer	Yes	
PASS154	45-54	Female	Teacher	No	
PASS155	55-64	Male	Manager	Yes	
PASS156	65+	Female	Retired	No	
PASS157	18-24	Male	Student	Yes	
PASS158	25-34	Female	Office Worker	No	
PASS159	35-44	Male	Engineer	Yes	
PASS160	45-54	Female	Teacher	No	
PASS161	55-64	Male	Manager	Yes	
PASS162	65+	Female	Retired	No	
PASS163	18-24	Male	Student	Yes	
PASS164	25-34	Female	Office Worker	No	
PASS165	35-44	Male	Engineer	Yes	
PASS166	45-54	Female	Teacher	No	
PASS167	55-64	Male	Manager	Yes	
PASS168	65+	Female	Retired	No	
PASS169	18-24	Male	Student	Yes	
PASS170	25-34	Female	Office Worker	No	
PASS171	35-44	Male	Engineer	Yes	
PASS172	45-54	Female	Teacher	No	
PASS173	55-64	Male	Manager	Yes	
PASS174	65+	Female	Retired	No	
PASS175	18-24	Male	Student	Yes	
PASS176	25-34	Female	Office Worker	No	
PASS177	35-44	Male	Engineer	Yes	
PASS178	45-54	Female	Teacher	No	
PASS179	55-64	Male	Manager	Yes	
PASS180	65+	Female	Retired	No	
PASS181	18-24	Male	Student	Yes	
PASS182	25-34	Female	Office Worker	No	
PASS183	35-44	Male	Engineer	Yes	
PASS184	45-54	Female	Teacher	No	
PASS185	55-64	Male	Manager	Yes	
PASS186	65+	Female	Retired	No	
PASS187	18-24	Male	Student	Yes	
PASS188	25-34	Female	Office Worker	No	
PASS189	35-44	Male	Engineer	Yes	
PASS190	45-54	Female	Teacher	No	
PASS191	55-64	Male	Manager	Yes	
PASS192	65+	Female	Retired	No	
PASS193	18-24	Male	Student	Yes	
PASS194	25-34	Female	Office Worker	No	
PASS195	35-44	Male	Engineer	Yes	
PASS196	45-54	Female	Teacher	No	
PASS197	55-64	Male	Manager	Yes	
PASS198	65+	Female	Retired	No	
PASS199	18-24	Male	Student	Yes	
PASS200	25-34	Female	Office Worker	No	
PASS201	35-44	Male	Engineer	Yes	
PASS202	45-54	Female	Teacher	No	
PASS203	55-64	Male	Manager	Yes	
PASS204	65+	Female	Retired	No	
PASS205	18-24	Male	Student	Yes	
PASS206	25-34	Female	Office Worker	No	
PASS207	35-44	Male	Engineer	Yes	
PASS208	45-54	Female	Teacher	No	
PASS209	55-64	Male	Manager	Yes	
PASS210	65+	Female	Retired	No	
PASS211	18-24	Male	Student	Yes	
PASS212	25-34	Female	Office Worker	No	
PASS213	35-44	Male	Engineer	Yes	
PASS214	45-54	Female	Teacher	No	
PASS215	55-64	Male	Manager	Yes	
PASS216	65+	Female	Retired	No	
PASS217	18-24	Male	Student	Yes	
PASS218	25-34	Female	Office Worker	No	
PASS219	35-44	Male	Engineer	Yes	
PASS220	45-54	Female	Teacher	No	
PASS221	55-64	Male	Manager	Yes	
PASS222	65+	Female	Retired	No	
PASS223	18-24	Male	Student	Yes	
PASS224	25-34	Female	Office Worker	No	
PASS225	35-44	Male	Engineer	Yes	
PASS226	45-54	Female	Teacher	No	
PASS227	55-64	Male	Manager	Yes	
PASS228	65+	Female	Retired	No	
PASS229	18-24	Male	Student	Yes	
PASS230	25-34	Female	Office Worker	No	
PASS231	35-44	Male	Engineer	Yes</td	

SECTION 1: Basic Details.

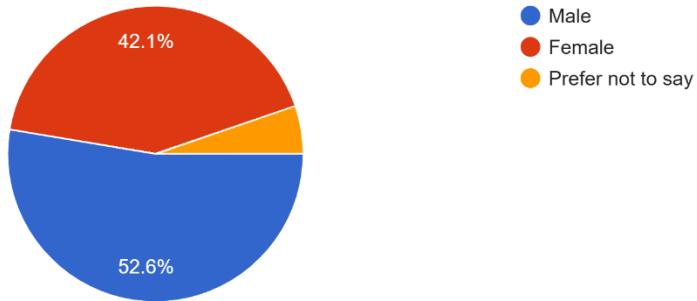
Age Group

38 responses



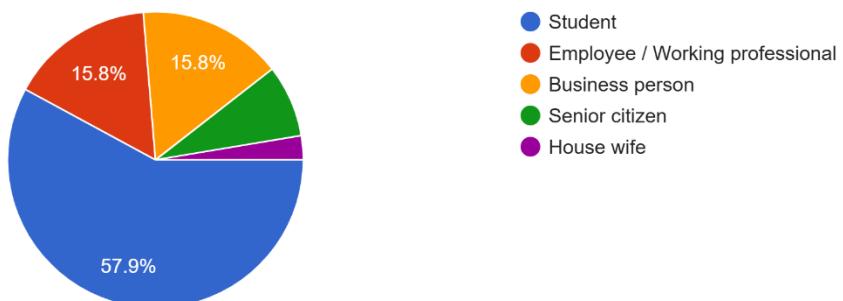
Gender

38 responses



Your Primary Role

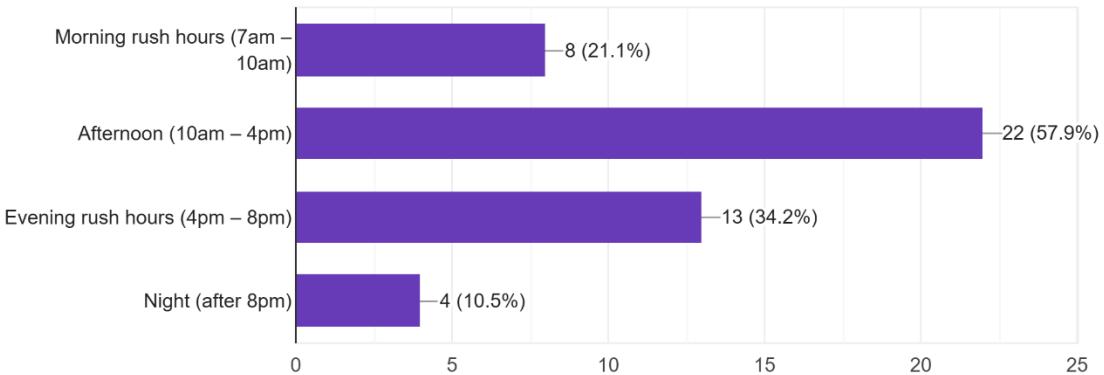
38 responses



SECTION 2: Metro Usage.

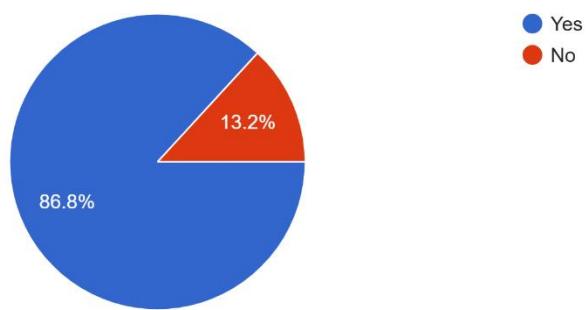
When do you mostly travel?

38 responses



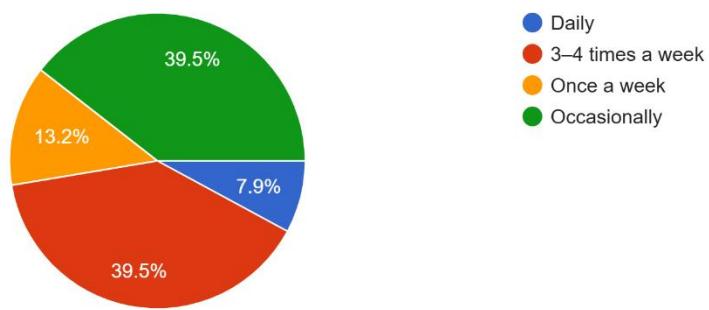
Do you use metro services?

38 responses



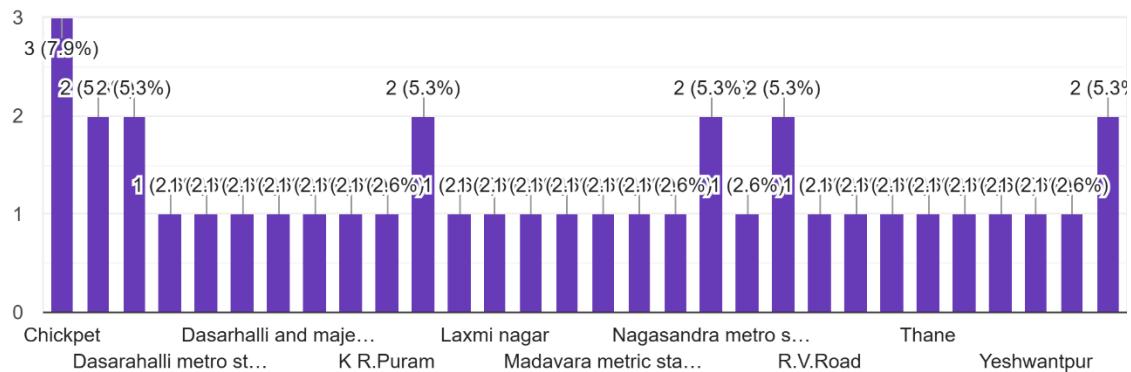
How often do you use metro?

38 responses



Which metro station do you use frequently?

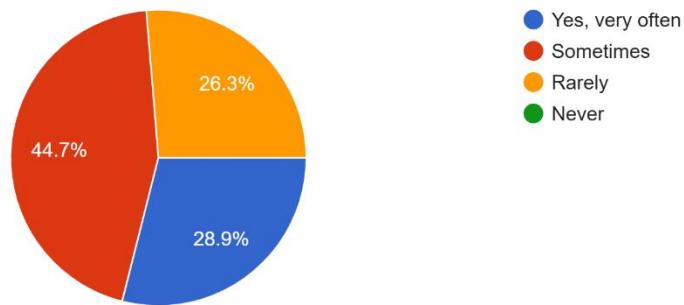
38 responses



SECTION 3: Overcrowding Experience.

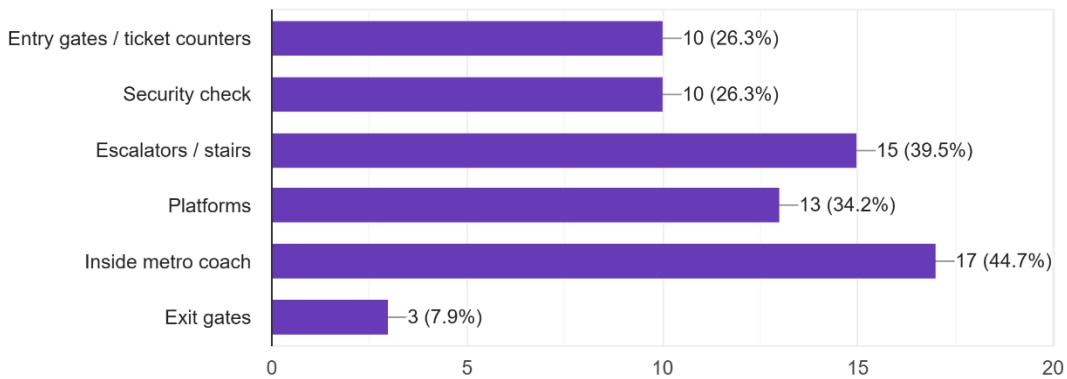
Have you experienced overcrowding in metro stations?

38 responses



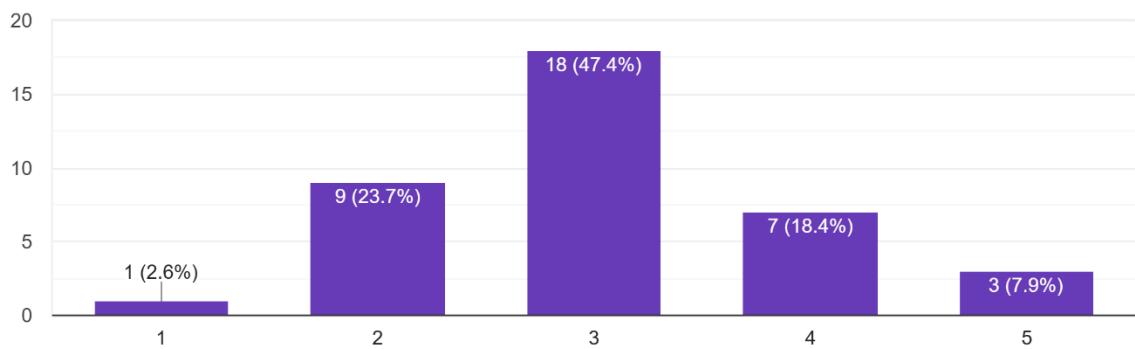
Where do you face maximum crowding?

38 responses



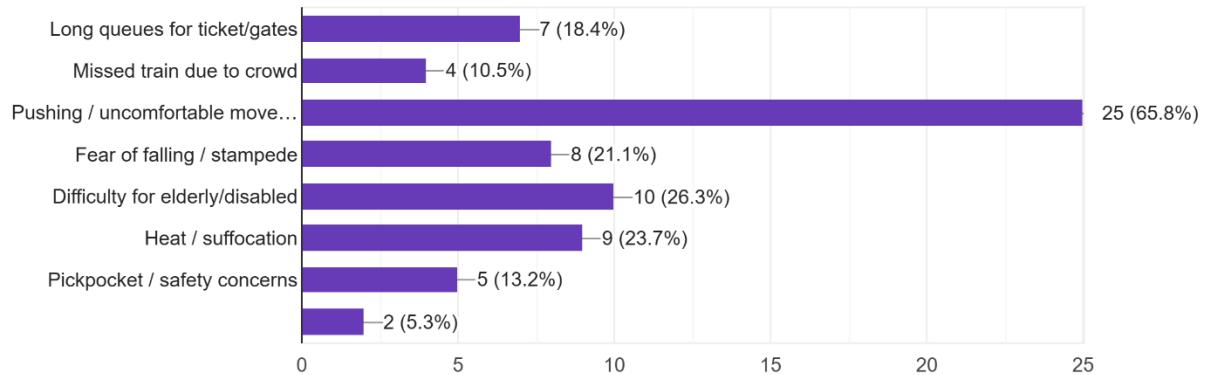
Rate overcrowding severity during rush hours

38 responses



What problems do you face due to overcrowding?

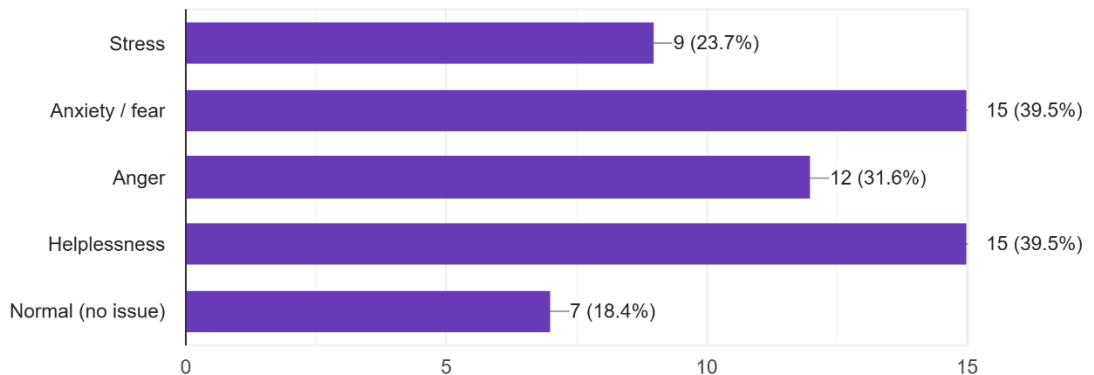
38 responses



SECTION 4: Emotional & Safety Impact.

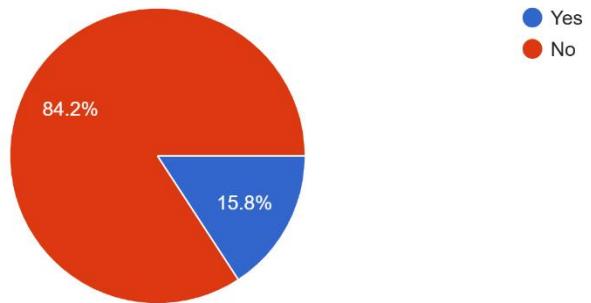
How do you feel during overcrowding?

38 responses



Have you ever faced a safety incident due to crowd?

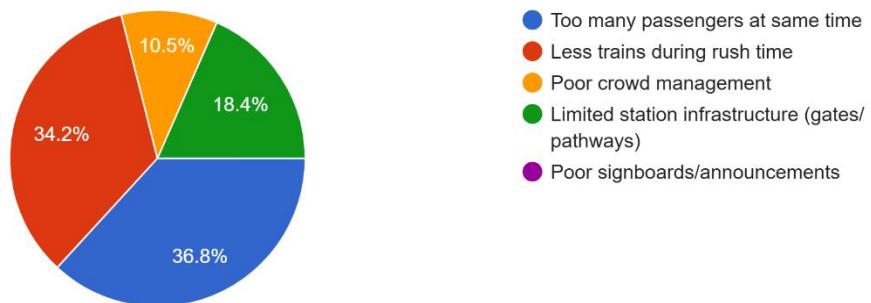
38 responses



SECTION 5: Root Cause & Suggestions.

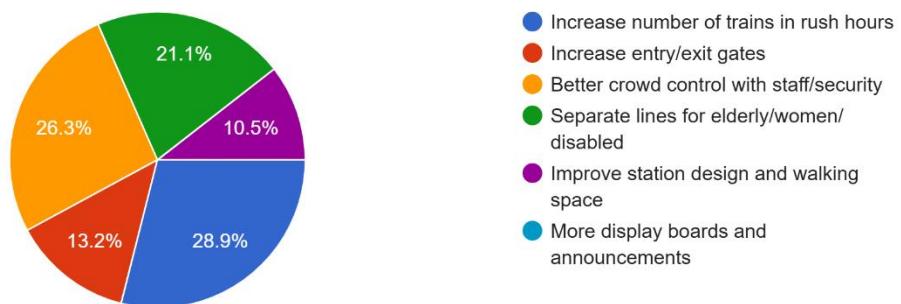
What do you think is the major reason for overcrowding?

38 responses



Which improvement will reduce overcrowding the most?

38 responses



SECTION 6: Consent.

Do you agree to share your response for academic research purposes?

38 responses

