




# The personal safety burden for women taking public transport in Australia and implications for provision of equitable public transport

Julie A. King<sup>a,b,\*</sup> , Dominique A. Greer<sup>c</sup>, Rae S.M. Danvers<sup>b</sup>, Byron W. Keating<sup>c</sup>

<sup>a</sup> School of Psychology and Wellbeing, University of Southern Queensland, B Block, 11 Salisbury Road, Ipswich, Queensland 4305, Australia

<sup>b</sup> School of Public Health and Social Work, Queensland University of Technology, O Block, 149 Victoria Park Road, Kelvin Grove, Queensland 4059, Australia

<sup>c</sup> School of Advertising, Marketing and PR, Queensland University of Technology, Gardens Point Campus, 2 George St, Brisbane City, Queensland 4000, Australia

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## ABSTRACT

Travel on public transport for women is associated with concerns about safety from harassment and violence, and women may avoid public transport or make changes to their travel as a consequence. This qualitative research aimed to explore women's experiences on public transport, the steps they take to avoid harassment and violence, and what they thought could be done to improve their safety. Women (n = 44) in Australia's two largest cities, Sydney and Melbourne, were recruited for focus group discussions and their responses were analysed thematically. The results showed that women experience a personal safety burden, due to the need to anticipate possible exposure to harassment and violence, plan ways of avoiding or mitigating the risk, and use defensive tactics to cope with uncomfortable situations. This personal safety burden has five dimensions: cognitive, temporal, emotional, financial and social. The responses showed that women tended to take the public transport system as a given, and to believe they needed to take responsibility for their own safety, so that they did not nominate particular solutions for public transport providers to implement. However, it was evident that the features of public transport travel that participants felt were safer, such as the presence of trained staff, are diminishing with the move to greater use of technology and automation. It is considered that public transport providers have an obligation to ensure that women are not disadvantaged by the personal safety burden observed in this research. It is recommended that public transport providers note the existing features that women find safer (e.g., well-lit environment, presence of trained staff) and seek to extend their provision; and investigate innovative means of maintaining and enhancing safety for women while pursuing technological change.

## 1. Introduction

It is generally acknowledged that women experience transport disadvantage in terms of access to work, education, health services, care responsibilities, shopping destinations and social activities (Dominguez Gonzalez et al., 2023). In part this is attributable to a public transport system that does not meet women's travel needs in terms of accessibility and availability (Legovini et al., 2022). However, it has also been shown that women avoid travel on public transport at certain times and locations (or travel with caution) for reasons that reflect broader social issues, with public transport trips becoming spaces in which sexual harassment, misogyny and violence against women are enacted (Noor and Iamtrakul, 2023, 2024). While public transport vehicles are a form

of public space, like streets, they are also subject to management and control in a similar way to schools and workplaces. Public transport managers and providers arguably have an obligation to ensure that public transport trips are safe for women.

Although this might seem to be a transport justice issue, transport justice approaches do not directly take account of women's need for safe travel. Martens (2020):383 states that his landmark book *Transport Justice* is "an account of the fundamental duties of government in the domain of transport". However, Martens is mostly concerned with the distribution of transport as a public good, and capability in terms of access to transport (Vanoutrive and Cooper, 2019); his transport justice approach does not address the social and experiential issues that are important to many women (and the same can be said of other justice and

\* Corresponding author at: School of Psychology and Wellbeing, University of Southern Queensland, B Block, 11 Salisbury Road, Ipswich, Queensland 4305, Australia.

E-mail addresses: [julie.king@unisoq.edu.au](mailto:julie.king@unisoq.edu.au), [julie.macknight-king@qut.edu.au](mailto:julie.macknight-king@qut.edu.au) (J.A. King), [dominique.greer@qut.edu.au](mailto:dominique.greer@qut.edu.au) (D.A. Greer), [r.danvers@qut.edu.au](mailto:r.danvers@qut.edu.au) (R.S.M. Danvers), [byron.keating@qut.edu.au](mailto:byron.keating@qut.edu.au) (B.W. Keating).

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equity issues, such as racism) (Lehmann, 2020). The same can be said of attempts to elaborate Martens' approach, e.g. Randal et al. (2020), who cite Nussbaum (2007) dissection of the capabilities approach with its specific mention of "Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence" [9:23], but fail to consider these capabilities in their case studies. Most discussions of transport justice and transport equity stand aloof from the negative perceptions and experiences of women concerning the possibility of harassment and assault while using public transport. This begs the question of the relevance of a transport justice approach that does not consider the feelings and perceptions associated with access to transport, and is the responsibility of organisations that in many cases do not even disaggregate travel by gender (Kurshitashvili et al., 2024). Mobility justice, in contrast, embraces procedural (rather than distributive) justice, thereby considering who suffers because of the way a particular form of mobility is implemented (Verlinghieri, 2024). Characteristics such as gender, race and disability are central to the embodied experiences of travellers in different spatial settings, and mobility justice research often explores these influences and experiences (Sheller, 2020).

The sociological literature (reviewed in more detail below) focuses strongly on women's experiences and fears, with the public transport arena effectively being a subset of the public space described in Valentine's "geography of women's fear" (Valentine, 1989). Newton et al (Sheller, 2020). explore precautionary behaviour that undertaken by male and female public transit users in five large cities, classifying them into six avoidance behaviours and five risk management behaviours that differed in levels of use by gender. Vera-Gray and Kelly (2020) added the concept of "safety work" to the discussion of women's fears in public space, defined as the work that women undertake in anticipating the possibility of violence or harassment, and taking measures to avoid them, mitigate their impact, or defend themselves. Consistent with a broader concept in feminist discourse called "invisible work" or "mental load", safety work refers to an additional and unrelenting load of care and precaution required of women. Notably, the transport justice literature includes a much narrower neoliberal version of this concept, often termed "pink tax". Studies in this area (e.g (Kaufman et al., 2018).) confirm the greater exposure of women to harassment and violence than men, but then monetise the extra costs of alternative transport or timing, ignoring the emotional and physical costs of anticipating problems and taking safety work precautions to address them. Our approach privileges the experiences of women using a sociological/ethnographic approach.

The research reported in this paper involves collaboration between the authors and major public transport providers in Australia's two largest cities (Sydney and Melbourne) to address a gap in knowledge identified in discussion with the providers: the nature and extent of women's experiences on public transport in Sydney and Melbourne, the experiences that discourage them from travel, and the measures participants believe transport operators could take to make public transport use feel safer for women. In addition to these central aims, we also sought to explore the precautions women take when using public transport and the load that it places upon them, as there is a lack of research on such "safety work" in Australia.

A focused review of existing research in the area forms the next section, followed by an outline of the qualitative methodology employed. The subsequent section combines findings and discussion of their implications (consistent with common practice in qualitative research reports), followed by an overall discussion and conclusion.

### 1.1. Literature review

This literature review provides an overview of existing research related to women's experiences of public transport, women's feelings of safety on public transport and safety strategies utilised by women whilst using public transport. Literature sources were limited to countries in the global north and published between 2014 and 2024. Research

activities reported in the articles included in this review were conducted in Australia, Canada, Italy, Japan, New Zealand, Portugal, Sweden, and the United States.

#### 1.1.1. Women and public transport

In the global north, women use public transport at higher rates than men (Chowdhury and van Wee, 2020; Loukaitou-Sideris, 2020). Women's usage patterns for public transport differ from men due to affordability (Chowdhury and van Wee, 2020), lack of access to private transport (Loukaitou-Sideris, 2016) and the care-taker responsibilities women are often tasked with (Grant-Smith et al., 2017). Their trips are consequently more complex than men's (Loukaitou-Sideris, 2020; Grant-Smith et al., 2017; Grisé et al., 2022; International Transport Forum, 2019; von den Driesch et al., 2020). Despite their dominance of public transport usage, existing policy and planning for public transport often overlooks the diverse needs of women (Chowdhury and van Wee, 2020; Joelsson and Scholten, 2019). This has been argued to have flow-on effects for how public transport services are experienced by women (Beebejaun, 2017; Gekoski et al., 2017).

#### 1.1.2. Experiences of harassment on public transport for women

Data concerning the rates of harassment that women experience varies from location to location and differs across various studies. A review of harassment experiences on public transport found that, in spite of wide variations in definitions and methods, rates of harassment are higher among women than among men, often markedly so (Ison et al., 2023). Research conducted in the United States found that 77 % of participants had experienced or witnessed sexual harassment (Natarajan et al., 2017). A small-scale study exploring transgender and gender diverse experiences in Portland, Oregon reported that all but one woman in the 25-person study had experienced harassment (Lubitow et al., 2020). Stark and Meschik (2018) found that, over a 12-month period in Austria, approximately 30 % of women had experienced harassment. The Australia Institute (Johnson and Bennett, 2015) surveyed 1426 people and discovered that 87 % of women had experienced harassment. In the United Kingdom, Gekoski et al. (2017) conducted a rapid evidence assessment of existing literature and found that the percentage of women that have experienced harassment on public transport ranged from approximately 15 % in the UK to as high as 95 % in other countries.

Despite these high rates of self-reported harassment, as little as 2–4 % of all incidents of harassment are reported to either police or public transport authorities (Natarajan et al., 2017). Gardner et al. (2017) argue that data on safety and harassment on public transport for women is scarce due to consistent under-reporting and inadequate data collection methods. Research suggests that under-reporting of harassment stems from cultural factors (Loukaitou-Sideris, 2014) and lack of knowledge about reporting processes (Ball and Wesson, 2017).

Ding et al. (2020) note that different types of harassment are often more prevalent in some contexts than others. Most noted in the literature is the frequency of non-confrontational or indirect forms such as verbal harassment (Gekoski et al., 2017; Natarajan et al., 2017; Lubitow et al., 2020; Stark and Meschik, 2018; Gardner et al., 2017). They may include catcalls, comments about women's bodies and requests for sexual acts (Natarajan et al., 2017; Johnson and Bennett, 2015; Gardner et al., 2017). Additionally, women can also often be subjected to verbal harassment that is racist, ableist, homophobic/and or transphobic in nature (Ison et al., 2023; Lubitow et al., 2020; Wayland et al., 2022). Women are also subjected to more direct or confrontational harassment behaviours such as physical intimidation, violation of personal space, leering, witnessing indecent exposure and being photographed without consent (Ison et al., 2023; Natarajan et al., 2017; Lubitow et al., 2020; Stark and Meschik, 2018).

#### 1.1.3. Influences on feelings of safety for women

There are commonalities across the literature as to what factors make women feel unsafe. These include the presence of rowdy groups of

people, unattended transit stations, an absence of other passengers, physical environments that are not adequately lit and travelling after dark (Chowdhury and van Wee, 2020; Gardner et al., 2017; Loukaitou-Sideris, 2014; Ceccato and Loukaitou-Sideris, 2022).

In contrast, the aspects of public transport that increase feelings of safety while using public transport include staffing, environmental features and women’s own preventive behaviours as key contributors to women feeling safer (Ison et al., 2023; Natarajan et al., 2017; Lubitow et al., 2020; Gardner et al., 2017; Loukaitou-Sideris, 2014; Chowdhury, 2019; Coppola and Silvestri, 2021; Gekoski et al., 2015). It is of interest that, despite universal adoption of CCTV as an environmental safety strategy, studies have found that CCTV surveillance has little to no impact on how safe women feel while using public transport (Gardner et al., 2017; Gekoski et al., 2015). Instead, women experience greater feelings of safety when transit stations and surrounding areas are consistently well-lit with bright lights (Loukaitou-Sideris, 2014). Covered walkways have also been found to be a feature of transit stations reported to make women feel safer (Chowdhury, 2019). A study conducted in Europe (Coppola and Silvestri, 2021) found that women felt that transit stations which were hybrid bus and train stations were safer. Less tangible features of transit stations found to result in greater perceptions of safety were noted as being related to crowd density (Chowdhury and van Wee, 2020; Coppola and Silvestri, 2021), accessible and accurate information about public transport services (Chowdhury and van Wee, 2020; Loukaitou-Sideris, 2014) and staff that were aware of the risk of harassment for women and were trained in bystander intervention methods (Lubitow et al., 2020). The presence of trained staff is an example of the well-known “capable guardian”, although this term includes objects as well as people, where the object makes it difficult for the crime to be committed (Cohen et al., 1981). This implies that technological measures such as CCTV are forms of guardianship, to the extent that their presence deters potential offenders.

1.1.4. Safety strategies – the burden on women

The Introduction mentioned Valentine’s research on women’s geographies of fear (Valentine, 1989), which was amongst the first studies to explore the ways that women’s behaviours are shaped by their fear of danger and utilised as a means of making them feel safer. As noted above, Vera-Gray and Kelly (2020) have suggested that these safety strategies and behaviours be considered as *safety work*. Natarajan et al. (2017) found that approximately 87 % of women reported using multiple preventive behaviours on their journeys. Across the literature, these behaviours include sitting in certain areas of transit vehicles or stops, using phones for others to track their location, utilising technology to avoid eye contact of other passengers (Gekoski et al., 2017; Ison et al., 2023) and ensuring they are dressed conservatively to avoid attention (Gekoski et al., 2017; Ison et al., 2023; Loukaitou-Sideris, 2014; Ceccato and Loukaitou-Sideris, 2022; Chowdhury, 2023). More physical preventive behaviours include ensuring they are positioned with their back against the wall or standing behind other male passengers (Chowdhury, 2023) or using their bags or outerwear as a protective buffer between their bodies and other passengers (Gekoski et al., 2017). Women will avoid peak-hour services (and sometimes any public transport) to avoid harassment (Ison et al., 2023; Natarajan et al., 2017; Stark and Meschik, 2018; Loukaitou-Sideris and Ceccato, 2022). They also report planning the entirety of their work, school, and social commitments around when they feel it is safest to use public transport (Ison et al., 2023)

The unique experiences of women on public transport must be acknowledged and addressed to ensure equitable and safe access to public transport services. A better knowledge of these experiences can support the design and implementation of public transport services that target and thus reduce the burden placed on women. Our focus is on Australia, and its two largest public transport networks.

2. Material and methods

We conducted six 90-minute exploratory focus groups with women who use public transport in Sydney or Melbourne, Australia. Sydney and Melbourne are the two most populous capital cities in Australia (2021 populations of 5.2 m and 4.9 m respectively) and are the highest users of public transport in Australia (Australian Bureau of Statistics, 2024a). Both cities have undertaken campaigns to support women’s safety, and have also implemented (or sought to implement) more direct approaches. In Sydney, for example, the State Government agency Transport for New South Wales (in partnership with the Greater Women’s Safety Charter and the Committee for Sydney) initiated the Safety After Dark Innovation Challenge, which encouraged technological solutions to enhancing women’s safety on public transport (Tu, 2020). In Melbourne, another example is the release by the Victoria Police of an app called STOPIT to enable women experiencing unwanted sexual behaviour to send a text and receive a link to give information to transit police (MacKinnon, 2022).

Each focus group was conducted by two researchers via Zoom to widen accessibility and participation. Employing qualitative methodologies such as focus groups to explore women’s safety facilitates a nuanced understanding of the lived experience of women, as it provides rich data and allows participants to relate to others’ experiences (Denzin and Lincoln, 2016).

2.1. Sample

The sample was recruited by an agency (Q&A Market Research) and comprised 44 women (including people who identified as women) who lived in either Sydney or Melbourne, Australia, were 18 years or older, and used public transport of any kind at any frequency. Purposive sampling was employed to recruit a wide variety of women with different lived experiences. Of the 44 women in the sample, 23 were Sydney residents and 21 were Melbourne residents. They ranged in age from 18 to 76 years old, with the largest proportion of respondents (22.7 %) being 26–35 years old (see Table 1). The sample was highly educated: the most commonly held qualification was a bachelor’s degree (53.3 %; n = 23), followed by a postgraduate award (25 %; n = 11).

As a result of purposive sampling, the sample was culturally and linguistically diverse. Sixteen women (36.4 %) reported that they were born outside Australia, in countries including Canada, China (3), Cyprus, India (2), Israel, Italy, Malaysia, Romania, Spain, United Kingdom (2), United States, and Vietnam. Three women spoke a primary language other than English at home (i.e., Indonesian, Mandarin, Vietnamese). Additionally, 21 women were multilingual (speaking up to three languages), able to converse in various combinations of Cantonese, French, Greek, Hebrew, Hindi, Hungarian, Indonesian, Italian, Mandarin, Marathi, Romanian, Spanish, and Vietnamese. Five women in the study identified as having a physical or intellectual disability (or both), but the exact disability was not shared. One woman identified as lesbian and married to a female partner. Interrogation of Australian Bureau of Statistics Census data (Australian Bureau of Statistics, 2024b) indicates that the sample has a similar education level to women who reported taking public transport to work on census day; if the exclusion of retired women and students from the census question is taken into account, the

Table 1  
Age of participants.

Age (years)	No. of Participants	%
18–25	8	18.2
26–35	10	22.7
36–45	7	15.9
46–55	7	15.9
56–65	5	11.4
66–76	7	15.9
<b>Total</b>	<b>44</b>	<b>100</b>

age profile of the sample is also similar.

2.2. Procedure

Upon commencing the focus group, participants were asked to complete a short online survey to provide their informed consent to participate in the research and to answer a series of demographic questions (e.g., age, gender, frequency of public transport use). Next, while one of the researchers took field notes, the other researcher asked participants about (a) what makes them feel safe on public transport, (b) what makes them feel unsafe on public transport, (c) whether they do anything special to make themselves (feel) safer on public transport, (d) whether public transport providers do anything to make them (feel) safer on public transport, (e) what could be done to make them feel safer, and (f) whether feeling unsafe on public transport impacts their daily life. Probing questions were used to gather additional insights and questions were omitted if they had been answered naturally in prior responses. The focus groups were recorded, with permission, for more accurate analysis. Participants were compensated AUD80.00 for their time.

2.3. Analysis technique

Thematic analysis was conducted by two researchers independently using the six-phase approach described by Braun and Clarke (2021). The transcripts were transcribed verbatim and then read by each researcher to refamiliarise themselves with the data. The researchers then read the complete data set once before commencing coding to identify emergent patterns. Patterns were then discussed, and the researchers identified connections between patterns to develop themes. These were reviewed, followed by a final analysis of the themes.

3. Results

Thematic analysis identified a series of key themes that collectively elaborate on how women experience (a lack of) safety on public transport. The data show that women perceive a range of safety risks when using public transport, and thus employ five types of defensive tactics to feel safer, which creates a significant safety burden.

3.1. The scope of safety work: Tactical defence

Women employ a range of defensive tactics to feel safer on public transport. These are enacted at all stages of the transport journey: when preparing to use public transport, when travelling on public transport, and when leaving public transport (see Table 2). The defensive tactics cluster into five types: logistical tactics, technological tactics, environmental tactics, social tactics, and physical tactics.

3.1.1. Logistical tactics

Logistical tactics are defined as any defensive tactic that focuses on planning or careful organisation to mitigate safety risk. These tactics are heavily practised early in the transport journey and then lessen across the journey until women return home. The most prominent and earliest-implemented logistical tactic was pre-trip planning, such as determining which routes and platforms to use (e.g. P40), choosing the safest stations or stops (e.g. P13), and mapping transit timelines (e.g. P42). The following quote illustrates this tactic:

*Just usually making sure that I've planned the journey. ... I probably would have looked at the tram tracker or whatever before I went out to really think about, "How am I going to be getting home?" I mean, things might change but, like, okay, I can catch a train at this time and that'll get me home at this time, and that means I have to walk this far. So, I'm already computing all of those. But if I take the tram that runs every ten minutes and that's a shorter walk and that's well-lit. So, all of those things*

Table 2

Tactics women use to stay safe(r) on public transport.

Preparing to Use Public Transport	
Logistical	<ul style="list-style-type: none"> <li>• Extensive trip planning (e.g., knowing platforms to use, choosing stops, mapping timelines, choose a leaving time)</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Avoid arriving too early for trip to minimise exposure</li> <li>• Charge phone and manage battery life to ensure you have charge when travelling</li> <li>• Download apps to call Triple Zero quickly</li> <li>• Check social density on app and potentially wait for a less busy carriage</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Avoid entry/exit tunnels and choke points to enter public transport station or stop</li> <li>• Drive/walk to a safer station or stop</li> <li>• Park as close as possible to the planned exit</li> <li>• Wait away from station or stop (e.g., in the park before the ferry stop, outside the pool of light at the bus stop, at a nearby shop)</li> <li>• Wait/travel near CCTV</li> </ul>
Physical	<ul style="list-style-type: none"> <li>• Wear flat shoes</li> <li>• Wear a sweater or similar shapeless overgarment to hide outfit</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Travel with others where possible</li> </ul>
Travelling on Public Transport	
Logistical	<ul style="list-style-type: none"> <li>• Avoid transitions from one transport mode to another (e.g., train to bus) to minimise waiting</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Actively use mobile phone to call/notify a safe person of your activity</li> <li>• Passively use mobile phone for route tracking and location services (e.g., Apple iPhone Find My tracking)</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Choose travel positions carefully (e.g., near a guard, near a driver, close to a Public Safety Officer, against a solid wall, near the station exit, near the exit)</li> <li>• Move carriages/waiting position away from trouble</li> <li>• Seek out emergency buttons</li> <li>• Move fast and stay standing to increase mobility</li> <li>• Wait/travel near CCTV</li> </ul>
Physical	<ul style="list-style-type: none"> <li>• Pretend to sleep while travelling</li> <li>• Wear headphones without music to maintain situational awareness</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Position bag on neighbouring seat to maximise personal space</li> <li>• Stay alert to familiar and new users</li> <li>• Avoid sitting near men travelling alone</li> <li>• Avoid eye contact and conversation with potentially threatening individuals</li> </ul>
Leaving Public Transport	
Logistical	<ul style="list-style-type: none"> <li>• Arrive home before dark</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Actively use mobile phone to call/notify a safe person of your activity</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Avoid entry/exit tunnels and choke points</li> </ul>
Physical	<ul style="list-style-type: none"> <li>• Practice extreme vigilance and situational awareness (e.g., shoulder checks for being followed)</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Travel with others where possible</li> </ul>

*are going through my mind in the planning of how I might get home, ... particularly if it's getting home later at night and there's been some drinking involved and there's going to be other people in similar situations. (P34, aged 49, Melbourne)*

During trips, women avoid arriving too early for trips (P42) and making transitions between transport modes (e.g., moving from trains to buses, or tram to walking; P13) to minimise their risk exposure waiting at stops and stations. Finally, some women reported that they typically plan to arrive home before nightfall (e.g. P28), sometimes curtailing social activities to stay safe.

3.1.2. Technological tactics

Technological tactics are defined as any defensive tactic that focuses on using technology to mitigate safety risk. These tactics are practised evenly across the transport journey, and many rely heavily on an internet-enabled smart phone. Prior to travel, women reported that they ensure their smart phones are charged (e.g. P29), then actively manage their battery life until they return home (e.g. P11), as the following quote illustrates:



Definitely always make sure, especially if I'm catching public transport at night, that my phone is charged and leave battery on my phone. I've been stuck before where I've gotten off a bus or the metro and with the intention of catching an Uber home from the station and then my phone has been dead so I've been stuck. (P11, aged 38, Sydney)

Many women download apps to improve their sense of safety. For example, one participant (P10) reported that she downloaded the TripView app from her public transport provider so she could check the social density on her route and wait to travel if it was overcrowded. Another participant (P15) reported using Google Maps to map out her journey. A third participant (P30) reported that she downloaded the Emergency Plus app to quickly call Triple Zero (Australia's emergency services number is 000), as the following quote illustrates:

Another thing I do is also have an app on my phone that has a direct line to calling 000. It's mostly [for] when it's really late at night and I don't feel safe at all and when I have it on hand. You have to, I think, say a phrase and they directly call from your phone. It's almost like a microphone. If anything happens and it's too quick to act, you just have to say those words and it calls the police and shares everything, like your live location and stuff like that. (P30, aged 19, Melbourne)

During travel and particularly towards the end of travel, women reported using their smart phones actively and passively to call or notify a safe person about their travel activity. For example, some women actively call or message a spouse or friend also travelling, as the following quotes illustrate:

I normally would contact my husband and say, "Hey, I'm catching the next RiverCat" and I would tend to talk to him on the phone, possibly the whole journey. If I didn't, I would most probably ring him again when I was one stop away and then also make sure that he drove down to the RiverCat terminal to pick me up, as opposed to walking through the park on my own. ... I guess it provides a comfort by being able to sort of talk to someone, even though while you're still sort of aware of what's going on around you. (P21, aged 64, Sydney)

In some cases this was used as a form of capable guardianship:

I often make a phone call to someone. Obviously if it's not extremely late at night but if I've gone out with friends, usually girlfriend and I will be like, okay, am I calling you on the way home so that you're on the phone to them. You're obviously not talking about where you're going and how far you are from home now or anything like that. I'm really mindful of the conversation but I think it's a deterrent because it allows anyone that might be listening to know that someone's looking out for you and someone knows your movements. (P26, aged 41, Melbourne)

Other women enabled passive tracking on their smart phones (e.g., Apple iPhone Find My tracking) to keep safe people aware of their real time location (e.g. P30; P37). Collectively, most women relied on the technological affordances of devices like smart phones to mitigate safety risks.

### 3.1.3. Environmental tactics

*Environmental tactics* are defined as any defensive tactic that uses (or avoids) features of the transport environment to mitigate safety risk. These tactics are practised across the transport journey and are often considered in concert with logistical tactics. Prior to travel, women report that they consider the public transport environment they are approaching and make tactical choices to protect themselves from threatening environments. Where possible, women will avoid entry/exit tunnels and choke points to enter stations or stops (e.g. P31, P41) and avoid parking long distances from their planned exit (e.g. P40). Some women walk or drive to an alternative station or stop that is perceived to be safer than their closest transport stop, as the following quote illustrates:

If I'm heading into the city in the evening, I'm most likely to drive to a nearby station, which is not my closest. I could get a bus from the end of my street, which would take me to other train stations, but I'll drive to one nearby which I know has parking so that I know that I'm not going to be walking through streets to get back to my car or waiting for a bus to come and then walking home. (P13, aged 43, Sydney)

When waiting for or travelling on public transport, several women discussed waiting near CCTV cameras, even if they were not confident of its usefulness or immediate value, as the following quote illustrates:

I always stand right near CCTV. I'm really mindful about where it is. I don't think it necessarily prevents crime or bad behaviour, but if something did happen, then I feel there would be consequences, or I'd be validated, or I'd be found if I was kidnapped or whatever. (P26, 41 years, Melbourne)

When travelling, most women choose their travel positions carefully, locating themselves near capable guardians such as a guard (P18), a driver (P31), station attendant (P39; P27), or Public Safety Officer (P37). Others locate themselves in strategic points in the physical environment that reduce their risk of victimisation, such as having their back to a wall or standing near the exit, as the following quote illustrates:

I find that if I can lean against a wall or something, ... then I can see who's coming from the left and the right. But I don't like feeling that there's the possibility of someone coming up behind me. So if there's either a bus shelter or just whether I can be against a wall, that helps. (P4, 22 years, Sydney)

Several women reported that they scope out the environment to locate emergency call buttons in case of an incident (e.g. P29) and stay standing while in transit to observe others and quickly move away from trouble. Engaging in environmental tactics typically requires women to be mentally alert and constantly scanning the environment.

### 3.1.4. Social tactics

*Social tactics* are defined as any defensive tactic that uses connections with other people to mitigate safety risk. These tactics are practised across the transport journey and are often considered in concert with logistical tactics. One social tactic women reported regularly, as a form of capable guardianship, is to travel with independent others as much as possible, whether friends, family, or work colleagues, even if this requires coordinating with multiple people over the journey, e.g.:

[I]f I was going to a special function, if possible, I would try and take a friend with me. If not, ... [I would] try and leave with the others to get to your tram stop, station, whatever. Then I would try to get a member of the family, whether it's the husband or son or whatever to meet me at tram stop at the other end so that at least I've got someone there. (P28, aged 74, Melbourne)

Travelling in social groups was often perceived to substantially mitigate safety risks and reduce the need for constant vigilance, particularly if there were males in the group, e.g.:

I will always feel safer if I'm with even just one other person but if I'm in a bigger group, ... particularly if there's guys in the group, [I feel safer]. Even, yeah, pretty much every guy I know is a gay man and ... I will still feel safer with them because they are perceived as men regardless of any of their mannerisms or anything like that. (P13, aged 43, Sydney)

Conversely, some women who travelled with dependent others, such as children or disabled relatives, noted that they would need to act as the protector if a situation arose, increasing their perceived safety risk.

When women reflected on travelling alone, they reported that they became acutely aware of others in their travel environment (e.g. P34), particularly if these others are new (versus familiar) users of the service (e.g. P16). As a result, women often talked about identifying other "safe"

public transport users to travel near. For example, some women reported that they seek out families, couples, or quiet groups to sit close to on public transport (e.g. P32), assuming they pose less risk than rowdy groups of people or individuals (usually males) travelling alone:

*If there's people on a bus or a train I'll tend to go near groups, so sit near groups of people rather than single guys. Yeah, so if there's a couple of safe looking people, I will tend to gravitate towards them and if they're getting off at the same station as me kind of walk in their direction if it's possible rather than single off by myself. (P11, 38 years, Sydney)*

### 3.1.5. Physical tactics

Finally, *physical tactics* are defined as any defensive tactic that is embodied by women to mitigate safety risk. These tactics are practised across the transport journey. Physical tactics represent a counterpoint to social tactics, which leverage social connections, as they often seek to avoid undesirable social contact. Before travel, women reported that they manage their appearance and their possessions to reduce their visibility as a target or vulnerability if threatened. The following quotes illustrate how women dress to mitigate their safety risks, e.g.:

*I actually dress more conservatively when I do catch public transport. I've been catching public transport to work and school for years so my dress sense has become... I guess more androgynous. (P27, aged 29, Melbourne)*

*[My safety] would probably start with—and I know it sounds stupid—the type of bag I took as well. I'd wear a cross bag so that it can't get stolen. But also what do I actually need to take with me? Again, not make myself a target. ... So, if I've got bling on, hide it, those types of things, so being aware of that as well and definitely no headphones. (P39, aged 50, Melbourne)*

Popular physical tactics involve avoiding eye contact, using headphones to avoid conversation, and positioning their possessions to physically distance themselves from others, e.g.:

*I might have my headphones in but I'm not actually listening to music and I do it because I don't want people to talk to me, but I still want to be able to hear what's going on around me. (P8, 45 years, Sydney)*

*I'll put my bag next to me to try and get people not to sit next to me. (P1, aged 30, Sydney)*

When women leave public transport, they reported practicing extreme vigilance and situational awareness, as the following quote indicates:

*I think when I'm getting off the train, I would look at my back to see if anyone is getting off the train with me. If there is, and particularly a man, I would pretend I'm looking at my phone or something. I would stop, then let the man pass first, and then I will walk after him. (P25, 22 years, Melbourne)*

Despite the diversity of these five defensive tactics, women often had to be prompted to consider what precautions they undertook before, during, and after travelling. Many could only discuss defensive tactics after being provided an example or when another participant had explained her tactics. Participants agreed that this was due to being socialised into needing to take care when travelling so that much of the preparation was just second nature as women, e.g.:

*Our experiences are pretty broad as women and the decades that we're alive, we share a lot of intel about what society, how they treat us, what we can and can't do. (P26, aged 41, Melbourne)*

Women often implemented these tactics without appreciating the extra thought or time this entailed, thus rendering the safety burden invisible to those that are burdened.

## 3.2. The personal safety burden – dimensions

As women discussed the safety work they undertook to mitigate risk on public transport, a *personal safety burden* (discussed in more detail in the next section) became evident, expressed on five dimensions - cognitive, temporal, emotional, financial and social.

### 3.2.1. Cognitive dimension

Most prominent was the *cognitive dimension* or mental effort of mitigating women's safety risk. This was particularly evident when considering the logistical tactics women used. For example, trip planning requires extensive mental effort and significant prospective thinking to mentally simulate the future and avoid unsafe situations. The following quote illustrates the mental load one participant felt when anticipating interacting with someone potentially violent on public transport:

*I think learning strategies to use when someone does approach you: what do you say to de-escalate the situation? If someone does try to start something, how would you respond in that situation? Knowing what to do, knowing when to walk away from unsafe situations, that also is something that helps me when I'm making decisions on whether or not I want to catch this particular type of public transport. (P43, aged 20, Melbourne)*

Women referred to “computing” (P34) the perceived risks of different trips and making an “effort” (P4) to remain safe while travelling. While travelling and returning home, maintaining enough mental alertness to engage in environmental and physical tactics is also cognitively taxing. Interestingly, social tactics appear to mitigate some of this burden by sharing the mental load of environmental scanning and reducing hypervigilance.

### 3.2.2. Temporal dimension

Logistical tactics such as trip planning and prospective thinking take a significant amount of time to accomplish, and constitute the *temporal dimension*. Women also engage in behaviour that requires a greater time investment (e.g., driving to a train station instead of walking to a much closer bus stop; P13) to maintain their perceived safety. Similarly, social tactics require significant coordination between parties, which adds time to public transport journey planning.

### 3.2.3. Emotional dimension

The *emotional dimension* was expressed when women anticipated future danger or possible harassment and talked about managing their fear (P6, P19, P32, P43), nervousness (P6), worry (P19, P27), and unease (P27) on public transport. One participant (P30) even mentioned that “you can develop a phobia of public transport and avoid them as much as you can” when considering all the safety risks.

### 3.2.4. Financial dimension

Avoiding public transport, or taking safety precautions to use it, adds a *financial dimension* to the personal safety burden. For example, engaging in technological tactics typically means having to invest in a smart phone and run up data or call charges to remain safe. Many participants (particularly younger participants) reported that going out at night meant making the choice between coming home via “unsafe” public transport or paying more money to come home via an Uber or taxi. In the majority of cases, women choose to take an Uber or taxi, despite the financial implication of this decision, e.g.:

*I think my bank account will be affected by getting an Uber instead of catching public transport if I've been to a party and it's 11 and I feel that's too late for me to be travelling alone for 30 minutes. (P30, aged 19, Melbourne)*

One participant (P37) noted that hire cars are not necessarily “safe”, but safer than travelling with other members of the public.

### 3.2.5. Social dimension

Women also experienced a *social dimension* of burden when travelling by public transport. Most women were concerned about night-time travel because this was the time of day that made them feel most unsafe. This sometimes means taking extra precautions such as leaving events early, or avoiding travel at night altogether (thus missing events they would enjoy attending), e.g.:

*If I knew that I would be more comfortable getting public transport home really late at night, I'd probably have more nights out in the city, but the cost, knowing that I've got to get an Uber or a taxi home if I'm going to stay out super late it's just a little bit like, "Oh, okay, maybe I'll just stay home".* (P9, aged 60, Sydney)

Women noted that they modify their behaviour and physical appearance while out at night, knowing that they need to take public transport home, as the following quote illustrates:

*It would limit the amount I would choose to drink if I knew that I was having to get public transport home. I am also more likely to get an Uber, so it costs me money not wanting to get on public transport. It might not stop me from going to do something, but it might then cost me more or limit what I do while I'm out.* (P13, 43 years, Sydney)

These factors represent the burden of travelling in accordance with socialised requirements for women, who are often the targets of victim-blaming for their clothing or behaviour.

Table 3 provides some examples of how the dimensions are expressed in some of the tactics presented in Table 2.

## 4. Discussion

Overall the pattern of responses from women in Sydney and Melbourne about their experiences and concerns on public transport generally reflected the findings in the literature, although there were some differences from the precautionary behaviours identified by Newton et al (Sheller, 2020). They listed six avoidance behaviours, one of which was not mentioned in this study: avoiding particular bus lines. Our participants also listed a number of additional avoidance tactics, such as avoiding entry/exit tunnels and choke points. Newton et al (Sheller, 2020). identified five risk management behaviours, however our participants did not mention three of them: not wearing jewellery; not carrying purses, wallets; and carrying a weapon or object to defend yourself. However our participants mentioned a number of other tactics that could be considered forms of risk management, including wait-/travel near CCTV; park as close as possible to planned exit; move fast and stay standing to increase mobility. Some of these differences are likely attributable differences in context; for example previous research conducted by members of the research team in Bangladesh found that women commonly mentioned carrying a weapon (King et al., 2021).

Contrary to our hopes, our participants offered very few ideas about ways of addressing their negative experiences when asked what could be done by transport operators to make them feel safer, and seemed instead

**Table 3**  
Dimensions of the safety burden for women intending to take public transport.

Dimension	Examples of expression in tactics
Cognitive	Trip planning: prospective thinking to mentally simulate the future and avoid unsafe situations; strategies to avoid conflict; computing and balancing anticipated risks
Temporal	Greater time investment: planning; enacting tactics to reduce risk, such using a safer but more distant stop; coordination with others to enact social tactics
Emotional	Experiences of anxiety and stress anticipating potential risks
Financial	Greater cost of safe alternatives; cost of smart phones with additional roaming usage
Social	Missing social events or leaving early to reduce risk; modification of behaviour and appearance

to accept the inequitable nature of public transport as a given. Consequently, their responses about how they manage the risk of public transport were tactical in nature and based on taking personal responsibility. This acceptance of the status quo may be the reason why many participants did not initially see their tactical computation and decision making as anything noteworthy.

As mentioned above, we have labelled these efforts made by women to plan their safety as a *personal safety burden*, as the term “personal safety” more readily captures the sense of concern for physical safety, while also being broad enough to encompass psychological harm. This burden is spread across different aspects of travel: prior to travel, during travel, and leaving the public transport vehicle to reach the destination. We found that, for our participants, there were five dimensions to the personal safety burden: cognitive, temporal, emotional, financial and social. While all of these dimensions and the personal safety burden itself can arguably be experienced by men, our participants’ responses demonstrate that women are positioned as secondary users of a public transport system that more readily accommodates to the needs of men than women. The impacts of this burden before travel encompass the emotional stress involved in anticipating possible harassment and violence, and the cognitive effort of taking precautions, i.e. finding ways to avoid or mitigate these possible negative experiences; during travel the burden is one of extra vigilance, staying aware of other people, and making decisions about where it is safer to stand or sit; if something does happen, the passive nature of most public transport security systems means the victim cannot expect immediate assistance and may not be able to alert officials after the event.

Our participants did not provide clear guidance on what public transport providers could do to reduce their personal safety burden; they tended to want more of the elements that contribute to their feeling of safety (well-lit environment, presence of staff) rather than seeking a specific major reform. It is worth commenting that the actual direction being taken by public transport providers in some areas, notably staffing, is opposite to this stated preference. Measures such as increased use of CCTV are being implemented to provide a technological guardianship solution to redress the loss of physical guardianship, but our participants clearly viewed CCTV as an inferior solution; no one knows if the cameras are being monitored, and even if they were, whether there would be any action initiated as soon as an incident begins to develop, whether that action would include arrival of a physical guardian, and how long that would take. Similar concerns arise with smartphone apps that can be used to alert relevant staff to an unfolding incident of harassment or violence. A challenge for public transport providers is to explore ways that can enable a greater uptake of automated public transport operation, while enhancing levels of personal safety for women.

An additional observation that can be made about reliance on technology such as CCTV is that an implicit assumption of public transport providers is that it has a deterrent effect, i.e. that the benefit derives from the harassment and assaults that *could* have occurred if not for fear of being detected by CCTV, rather than triggering intervention of follow-up for those incidents that *did* occur. If this is the case, there would be an indirect long term benefit gained from easing women’s personal safety burden by reducing the number of incidents due to potential offender being deterred by the use of CCTV. However, consistent with criminological theories of deterrence, this requires that potential offenders believe that there is a high risk of being recorded on CCTV, a high risk of being identified as a result of this detection, a high probability of being caught, and a high probability of a severe penalty. A recent systematic review (Ceccato et al., 2022) shows that there is no consensus on the effectiveness of CCTV and the factors that contribute to it.

## 5. Conclusions

Women perceiving a great level of risk from travel by public transport than men, which means it is inequitable. Both justice and economic





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