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Beyond the campus: Exploring self-protective behaviors and mobile phone use among women students in urban environments

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ABSTRACT

Women are advised to avoid urban settings after dark and to carry a mobile phone. These precautions can reduce experiential fear of crime (EFC), which is influenced by the surrounding environment. However, these measures do not allow women to completely avoid potentially risky spaces. Women students commuting to urban universities are a prime example of this challenge. However, research on higher education and fear of crime (FoC) has largely focused on the university campus as the main site of activity, utilizing conventional methods that overlook experiences beyond campus, which limits a comprehensive understanding of student life. Between May and June 2022, 24 women students attending an urban university used a custom chatbot that documented their experiences commuting to campus over two weeks, before being interviewed. This research explores (1) women students' self-protective behaviors commuting to an urban university, (2) the settings these students use their mobile phone to alleviate EFC and (3) the impact that these behaviors have on students. Our findings reveal the protective behaviors that women students exhibit beyond campus, the limits of mobile devices to alleviate EFC in situ, and how experience methods can help articulate a more nuanced understanding of student life.

KEYWORDS

Experiential fear of crime; mobile phone; mobilities; protective behaviors; urban university; women students

Introduction

Urban environments are experienced differently by individuals (Frith, 2014; Massey, 1944). This point is underlined by the alarming number of women either murdered or attacked commuting home (Lothian McLean, 2021). Tackling violence against women and girls (VAWG) has become a national priority in the UK. Women are advised to avoid urban settings after dark, particularly if they are alone and to keep a mobile phone "within immediate reach" (Hartley & Richardson, 2021, p. 66). The proliferation of personal safety apps (Tozzo et al., 2021) demonstrates the perception of mobile devices as "weapons of self-defence" (Cumiskey & Brewster, 2012, p. 591). Neither

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mobile phones nor safety apps are inherently effective in these aims, nor do they ensure potentially risky spaces can be avoided. As Hartley and Richardson (2021) point out, both Jill Meagher and Eurydice Dixon were murdered while walking home in Melbourne, Australia, while they were on their mobile phones. Women students attending urban universities face similar challenges while ambulating to and from campus.

A key distinction should be made between campus-based universities and urban universities (Saker et al., 2025). The latter are commonly developed in municipal settings, with buildings spread out across the metropolitan domain. This means that students will likely spend considerable time commuting to and from campus (Maguire & Morris, 2018), and very possibly through unavoidable environments that are necessary parts of their journey. Related mobilities have the power to create "an immediate social and spatial distance between the students and life at university" (Christie, 2007, p. 2447). Though this might be the case, related studies exploring higher education (HE) and fear of crime (FoC) have largely focused on the university campus as the main site of student activity (Kaminski et al., 2010). This focus, of course, overlooks mobilities beyond campus, limiting a comprehensive understanding of student life, and missing key insights into how experiential fear of crime (EFC) impacts students (Saker et al., 2024). Likewise, while surrounding research does examine mobile technologies and the role they can play in mitigating the fear women experience in urban spaces (Hartley & Richardson, 2021), these studies do not explicitly utilize these technologies to comprehend fear as it is experienced in situ. Indeed, many studies rely on conventional methods, such as surveys (Henty & Peimani, 2025), which may underestimate the impact of place on the contours of this emotion (McConnell, 1997).

This reliance has prompted queries about recall bias and the ecological validity of associated data (McConnell, 1997), precisely because "the phenomena examined are not addressed in-situ, where life is experienced" (Kronkvist & Engström, 2020, p. 2). In response, experience methods, which include ecological momentary assessment (EMA), explicitly gather data that is proximate to the phenomena being observed (Shiffman et al., 2008). Smartphones are typically used as part of this approach because many people already carry these devices on their person (Evans & Saker, 2017; Hjorth & Pink, 2014). Mobile devices "provide a unique opportunity to collect context-specific data on people's fear of crime in public spaces (Irvin-Erickson et al., 2020, p. 307). Despite this potential, only a limited number of published studies have employed experience methods to better understand FoC and EFC in situ (Chataway et al., 2017; Saker et al., 2024, 2025; Solymosi et al., 2015), and these studies have yet to explore either protective behavior (Woolnough, 2009) or how mobile devices might be used to alleviate EFC.

Taken together, these gaps highlight the need for more experientially focused research that phenomenologically examines how women both

experience and manage EFC across their everyday mobilities to and from urban universities. Against this backdrop, we developed a custom chatbot, accessible through the instant messaging (IM) service Telegram. Our chatbot focused on the experience of commuting to and from an urban university. Between May and June 2022, 24 women students attending an urban university engaged with our chatbot for a period of two weeks. Following this, participants took part in a series of semi-structured interviews. The exploratory study we report on is driven by the following questions. First, what self-protective behaviors do participants exhibit in the context of their mobilities to and from campus and why? Second, in what settings do participants incorporate their mobile phones into these behaviors and why? Third, does the gathering of experience-led data in situ provide a critical space for participants to reflect on the embodied impact of these behaviors? In doing so, this article contributes empirical and experience-based data to research on women's EFC, demonstrating how women utilize their mobile devices, in real time, to negotiate and manage these mobilities.

In the next section, we detail the self-protective behaviors associated with both FoC and EFC and their relevance to women students attending university. We then examine how mobile phones are commonly used by women to alleviate EFC as they move through urban environments. Following this, we draw on the canon of locative media to highlight the suitability of experience methods to provide a space for critical reflection on the embodied impact of these protective behaviors. Finally, we outline the methodological approach of our study, before presenting our findings.

Background

Protective behaviors, mobile devices and experience methods

Experiential fear of crime (EFC) provokes either direct or indirect protective behaviors (Woolnough, 2009). Direct behaviors include physically defending oneself against a perpetrator (Bachman et al., 2002), while indirect behaviors, for example, include avoiding areas known to have high crime rates (Woolnough, 2009, p. 42). It is these indirect behaviors that we refer to as "protective behaviours." Gender identity correlates with both EFC and protective behaviors. As Young (1980) underlines, safety for women does not indicate an absence of danger *per se*, but rather an active and embodied practice that implicates a suite of physical and psychological behaviors. Following a feminist vein, these practices reveals the uneven power relationships that gender is structured on, which highlights that women's EFC is itself a deeply political issue (Pain, 1997; Young, 1980). Certainly, from a young age, women are socialized to be more cognizant of their physical vulnerabilities than men, as well as to associate EFC with their gender identity (Turner &

Torres, 2006). To combat this, women often constrain their actions and activities in reaction to certain situations. The fear of sexual violence by men, which women widely interpret as exemplifying FoC (see Tandogan & Ilhan, 2016), can readily influence associated mobilities (Saker et al., 2024).

Existing research demonstrates that women students, and those individuals who comprise a given campus community, frequently modify their behaviors in response to FoC (Saker et al., 2024; Tewksbury & Mustaine, 2003). For some students, protective behaviors mean avoiding certain campus-based spaces and activities (Currie, 1994), particularly if these activities occur in the evening (Kaminski et al., 2010; Saker et al., 2024), or carrying mace on their person (Woolnough, 2009). Such behaviors are revealingly interpreted by many women students as being a prerequisite for attending university (Klodawsky & Lundy, 1994). Such "subtle" shifts in lifestyle and behavior, as Kinsey (1984) puts it, can eventually lead to women living under a "virtual curfew." These shifts may reinforce various gender inequalities, as well as "preclude certain activities in public spaces, restrict independent mobility (Young, 1980) and police an unofficial code of 'appropriate' dress and behavior" (Pain, 1997, pp. 234–235). Goffman (1971, p. 32) describes such attentiveness as "dissociated vigilance," which occurs when people "monitor the environment while engaging in everyday activities" (Ferraro & LaGrange, 1987, p. 73).

Another way of understanding the gendered nature of spatiality that lies at the heart of this article, is by turning to the seminal work of Massey (1944), who states that "[the] intersections and mutual influences of "geography" and "gender" are deep and multifarious' (p. 177). For Massey (1944), space is never a neutral container, but rather relationally produced. This means the same space can be experienced differently by different people. For many women, this difference can manifest in feelings of vulnerability that emerge in response to certain surroundings, and spatial cues, including those associated with university (Del Carmen et al., 2000). The routes that women students take through campus, for instance, may reveal negotiated and sedimented behaviors that are predicated on gendered expectations about the potential for violence by men (Saker et al., 2024). Nonetheless, and as touched on above, existing studies within this field have primarily focused on university campuses as the main site of student activity (Kaminski et al., 2010), even though student life evidently extends beyond this setting (Saker et al., 2025). Consequently, the mobilities of women students attending urban universities have been widely overlooked. Our first research question addresses this gap: (RQ1) What self-protective behaviors do women students attending an urban university exhibit while commuting to and from campus and why?

Surrounding research on urban space and perceived risk demonstrates the role mobile devices can play in the context of EFC (Cumiskey & Brewster, 2012). Equally, additional attention should be given to "how the mobile interface has become thoroughly incorporated into our experience and perception of the urban

dark" (Hartley & Richardson, 2021, p. 67) and what this might mean for women students moving through urban environments. To unpack this point, different kinds of mobile usage should be considered. Mobile phone usage can be categorized as either "being-on-the-phone or being-with-media" (Hartley & Richardson, 2021, p. 71). Regarding the former, studies show that women frequently use their mobile phone to call others (Hartley & Richardson, 2021) as they move through dark settings on their own (Rader, 2008). This practice allows women to construct an intangible margin between themselves and physically co-present others (Campbell & Park, 2008), while also revealing the ways mobile media co-constitute experiences of space and place (Hjorth & Pink, 2014). Accordingly, "[access] and use of this technology in public can . . . shift the domain of expectations within face-to-face interactions" (Cumiskey & Brewster, 2012, p. 590). The instrumental use of technology can communicate that a person is with company and does not wish to be disturbed, which reflects the phenomenology of mobile media (Evans & Saker, 2017).

For Merleau-Ponty, (1914 [1945]) the "corporeal schema" of the body is not limited by the devices and technologies used – quite the opposite. Mobile devices extend our capabilities, and craft "certain kinds of being-in-the-world, and particular ways of knowing and making that world" (Richardson, 2007: 205–206). Farman (2012) uses the term "social proprioception" to articulate the sensation of being co-located with "absent others" (Thulin et al., 2020), noting that "mobile intimacy may be a go-to solution when the user feels alienated, isolated and alone in their current context" (ibid., p. 590). In other words, "mobile intimacy" can be leveraged by women as they move through those "in-between" spaces that are endemic to urban environments. In the context of "being-with-media" (Hartley & Richardson, 2021, p. 71), related research shows how personal stereos can provide the illusion of aural sanctuary. This acoustic refuge can limit the kind of social encounters and interactions that commonly occur within the city (Bull, 2000). Much like the nonverbal signals associated with a phone call in transit, this practice indicates to co-present others that the user is in "a state of being-on-the-phone or being-with-media" (Hartley & Richardson, 2021, p. 71). This indicator has the potential to generate a sense of embodied safety (Young, 1980), which can reduce the negative feelings associated with EFC. Yet this "absent presence" (Gergen, 2002) does not come without cost.

Mobile phone usage can render users less cognizant of their immediate surroundings (Evans & Saker, 2017). Environmental disconnection can increase risk-taking behavior (Cumiskey, 2017), as well as lull women into a false sense of security, assuming that they will "be rescued from a dangerous situation simply by making a call" (Cumiskey & Brewster, 2012, p. 591). As Hartley and Richardson (2021) put it, "mobile phones provide us with an as-if sense of safety – that is, they connect us to our intimate others and we perceive ourselves safer simply because other people are aware of our location" (p. 74).

In either case, there is a growing need for additional studies that combine "mobile media and urban space and embodied perceptions of safety and risk" (Hartley & Richardson, 2021, p. 67), particularly in the context of urban universities and women students. More precisely, there is a need for more focused research that examines the phenomenology of EFC for women through data gathered in-situ. Our second research question addresses this gap: (RQ2) In which settings do women students attending an urban university use their mobile phones to alleviate or manage fear?

Nonetheless, not all mobile media necessarily disconnect users from their physical setting (Campbell & Park, 2008). This point is demonstrated by mobile media and locative apps that shape how urban settings are experienced (Frith, 2014). Related studies highlight the nuanced way digital wayfaring can alter experiences of place (Hjorth & Pink, 2014) and mobilities (Evans & Saker, 2017), as well as strengthen connections to new and unfamiliar environments (Saker & Evans, 2016). The seminal location-based social network (LBSN), Foursquare, is a good case in point. Launched in March 2009, Foursquare initially functioned in four ways. First, it allowed users to "check-in" at their current location (e.g., a café or a restaurant). Users' physical location was shared with a defined list of friends, which might prompt "serendipitous" social encounters based on physical proximity. Second, it was a location-based game. Users were awarded points for checking-in at particular places. Third, it functioned as an environmental guide, allowing users to see and comment on suggestions left by others. Finally, it allowed users to record their spatial movements, which could be accessed in the future (Frith, 2014).

Saker and Evans (2016) found that an important aspect of Foursquare was the provision of a critical space for users to reflect on the environments through which they moved frequently. Such a space, of course, is important to this research. As they put it, "participants would feel differently about these environments, with their concomitant feelings strengthened" (p. 1179). In part at least, this critical space hinged around the in-situ nature of the experiences recorded. The function of locative media as a form of experience methods can be identified in the rise of ecological momentary assessment (EMA) apps, which explicitly seek to gather data that is proximate to the phenomena being observed (Shiffman et al., 2008). Though this may be the case, only a handful of published studies have employed experience methods to better understand FoC or EFC. Solymosi et al. (2015), for instance, developed a bespoke app to collect situational data on FoC within Camden and Islington, two London boroughs. In doing so, their project illuminated that FoC differs "among individuals, places, and times" (Irvin-Erickson et al., 2020, p. 309), while also confirming the suitability of utilizing experience methods within this field. Similarly, Chataway et al. (2017) programmed ten geo-fences to situationally prompt participants to complete a short survey about "context-dependent … fear of crime and risk perception formation" (p. 300) each time they moved through

these chosen zones. More recently, Saker et al. (2024) employed experience methods to understand the various ways fear can frame the mobilities of women students as they moved through the university campus and beyond.

As insightful as these examples are, they primarily focus on FoC, rather than associated protective behaviors, and how mobile devices feature in these behaviors, which is the focus of this article. Equally, these examples did not consider how such an approach might restructure spatial relationships *à la* locative media, and more precisely LBSNs, such as Foursquare. These studies also did not consider what effect this methodological approach might have on the phenomenon being observed. Our third research question addresses this gap: (RQ3) Does the gathering of experience data in-situ provide a space for women students to critically reflect on the embodied impact of the protective behaviors that frame their mobilities?

In the next section, we outline the methods that underpin this project, before outlining how our data was analyzed.

Data and methods

The original research for this project was conducted between May and July 2022 and involved the use of a bespoke chatbot (N = 24) and follow-up semi-structured interviews (N = 22). Two participants chose not to be interviewed. A purposeful sampling strategy was employed to recruit a diverse range of students (Emmel, 2013) – regarding age, programme of study, and whether participants were full-time or part-time – who identified as women enrolled at an urban university. After ethical approval, researchers contacted course offices associated with undergraduate and postgraduate programmes and student societies at our chosen institution to ask if they could distribute information about the project. In either case, messages included information on our project, what participation would involve, contact details for further information, and explained that each participant would receive a £20 Amazon voucher upon completing the project. The age of participants ranged between 18 and 40 years old (mean = 25). Twenty participants were full-time students, two participants were part-time students, and two participants did not provide this information. Eleven students were undergraduates and another eleven were postgraduates, while two participants did not provide this information. All participants identified as women.

Chatbot data

In total, 24 participants used our chatbot for a period of two weeks.[1] During this time, all participants completed eight event-related tasks that

[1]A full description of the chatbot tasks, and user experience is provided in a dedicated online appendix.

revolved around EFC as it pertains to university life. The first task was effectively an onboarding task that familiarized participants with using our chatbot. This process allowed participants to share the coordinates of their physical location, alongside images and descriptions of their location, and how participants felt. While the chatbot did not automatically geotag responses, participants were able to manually share their geographical position using other mapping applications. That is to say, the anchoring of qualitative data to a particular place was something actively performed by participants if they chose to do so.

Task 2 focused on "travelling to university." Task 3 focused on "spending time at university." Task 4 focused on "moving through university." Task 5 focused on "socialising in university." Task 6 focused on "going out for the evening during term time." Task 7 focused on "traveling home from university." Finally, task 8 revolved around "Anything else we missed." For the context of this article, our data chiefly revolve around tasks 2 and 7.

Our chatbot was developed using Flow XO, which is an online chatbot software platform. Importantly, the chatbot was not an AI-driven or generative system, and no machine learning processes were used. Instead, Flow XO enabled us to control various aspects of the chatbot experience, using a system of rules, such as the tasks involved, when tasks would be broadcast to participants, and the time between first and second reminders to complete tasks. After a period of two weeks, all participants had moved through the same tasks, with the only variance being whether participants received automatic reminders, or manual reminders if the research team observed a participant had not recorded a response to a task after automated reminders had been sent.

Ethical considerations were central to the design and deployment of our chatbot. From the outset, participants were made fully aware of the nature of the research, what it would involve, and how data would be used. To reiterate, the chatbot did not track participants' location, nor did it gather additional data beyond what was voluntarily shared by participants.

The motives for using a chatbot to gather data are chiefly associated with the various advantages that experience methods offer, most importantly pertaining to ecological validity. As touched on above, experience methods characteristically involve data being gathered proximate to the phenomena observed (Shiffman et al., 2008). In the context of this research, this permitted us to study EFC, and the protective behaviors it prompted, as "a temporary state experienced in a given setting" (Engström & Kronkvist, 2021, p. 2), which can "vary across time and space" (ibid.). At the same time, our chatbot also diverges from research that typically employs experience methods. EMA apps, for example, which are commonly used in the health sciences, frequently revolve around quantitative data. In contrast, our study allowed participants to share

qualitative data about their mobilities, such as textual observations in response to tasks, alongside visual imagery, including photographs, if they chose to. In either case, data was recorded through participants' mobile phones and shared with our chatbot.

As touched on above, our use of these methods resonates with the functionality of locative media application, such as the LBSN, Foursquare, outlined above – albeit in a nuanced way – as we effectively invited participants to share qualitative information about how they were experiencing their immediate physical surroundings in situ (Evans & Saker, 2017). Nonetheless, it should also be noted that while participants were able to upload images – much liked users could with Foursquare – few images were shared while participants were seeking to alleviate EFC as part of their everyday mobilities. For these reasons, and in line with ethical considerations concerning anonymity, images are not reproduced in this article.

Finally, the data collected through our chatbot were anonymized and exported into individual documents that were then organized into a data structure uploaded into the qualitative data analysis software NVivo for post-research thematic analysis. The chatbot data for each participant were initially read multiple times by the researchers to aid familiarity. During this process, meaningful text and images were coded using a hybrid analytic approach. More precisely, we employed deductive coding informed by our theoretical framework outlined in our background section, while also incorporating inductive coding to allow new themes to emerge from data. An initial coding scheme was developed through this process, which was iteratively refined through its application across our dataset. When all data had been analyzed in this way, the researchers reviewed highlighted material to further refine the coding in line with the aims of this project. We continued to refine our code while interviews commenced, allowing insights from both datasets to inform the development of themes.

Semi-structured interviews

In total, 22 participants were interviewed. The age of participants ranged between 18 and 40 years of age (mean = 23.4). For the most part, interviews lasted for roughly one hour and were conducted using the video conferencing software Zoom. Interviews were semi-structured and revolved around EFC regarding commuting to and from an urban university. Building on the chatbot tasks, interview questions addressed the following themes, sociodemographic information; traveling to and from university; protective behaviors; unavoidable spaces and digital strategies; using the chatbot; and other aspects we might have missed.

Transcribed interviews were subsequently uploaded into NVivo for a period of post-research thematic analysis (Gibson & Brown, 2009). In line with the

analysis of chatbot data, interviews were read multiple times, with highlighted text thematically organized into categories relating to the interests of this project. We continued to refine our coding throughout the interview process by comparing interview data and codes with our chatbot data and codes.

Findings

Protective behaviors and women students

Our participants exhibited a range of protective behaviors in the context of their regular mobilities (Tewksbury & Mustaine, 2003; Woolnough, 2009), traveling to and from university (Christie, 2007). For example, participants displayed a general attentiveness to possible threats stemming from an awareness of their surroundings. As P6 (25, Chatbot) commented, "some areas (e.g., Shoreditch) in east London make me feel unsafe." This heightened attentiveness was commonly leveraged by participants to help avoid dangerous situations (Goffman, 1971), and the onset of more direct behaviors. Just as the character of protective behaviors could be tempered by surrounding factors, such as the time of day (Woolnough, 2009), so too could corresponding behaviors be amplified by other aspects such as the season and the influence of seasonality on daylight (Kaminski et al., 2010).

Many participants lived upwards of an hour or more from campus. These participants understandably chose to commute home from campus in the afternoon, rather than staying later. The cumulative impact of this decision is not insignificant and extends beyond the protective behaviors commonly associated with campus-based institutions. Self-imposed curfews of this nature (Kinsey, 1984) mean that participants are less able to engage in extracurricular activities that continue into the evening, which are part and parcel of the student experience. These self-imposed restrictions also challenge recommended policies for improving student life at urban universities, such as having teaching hours spread across fewer days (Maguire & Morris, 2018). For these students, fewer days attending university, would mean longer timetabled sessions, and the likelihood of missing out on both scheduled teaching as well as extracurricular activities.

EFC also impacted the mode of transport participants chose when coming into university or making their way home. For some participants, this meant taking the bus for part of their journey, rather than walking, because they associated the latter mode of transport with a heightened sense of fear. Related behaviors could lead participants to actively select longer routes home to obviate poorly lit roads and alleyways. As P22 (31, Chatbot) explained, "going home when it is dark means that I will take a longer route to my bus stop which is 20 minutes to avoid walking down poorly lit roads and alleyways." For these participants, choices were routinely made in the interest of

limiting EFC, which could mean extending the time spent traveling if the surrounding environment felt safer.

For other participants, protective behaviors not only shaped timetabled educational events, such as lectures and seminars, but also how they managed their social relationships (Kaminski et al., 2010). These behaviors frequently manifested as an amplified responsiveness that emerged during certain situations. In response to this "dissociated vigilance" (Goffman, 1971, p. 43), participants were more cognizant of "agreeing on a meeting place" (P24, 38, Chatbot), as well as ensuring the activity did not finish "too late in the evening" (P2, 23, Chatbot). Participants were not always able to modify their mobilities to facilitate social connections. As P15 (20, Chatbot) put it, "I don't feel comfortable with going out at night so therefore I don't do it at all." For these participants, protective behaviors meant more than adjusting certain activities, like campus-based students might (Currie, 1994), but could also mean these activities did not happen in the first place. Again, we would suggest that an appreciation of this is paramount to understanding the complexities of student life for women students attending an urban university.

In sum, our participants repeatedly made decisions about their travels that hinged around EFC and limiting this emotion: how and when they would commute, and with whom. As touched on above, these behaviors were predicated on a general "dissociated vigilance" (Goffman, 1971, p. 43). Though these behavioral shifts might appear trivial, the cumulative impact of this over time can physically and mentally affect participants in ways that are not always visible (Kinsey, 1984). In the next section, we move on to explore those unavoidable settings where participants were compelled to use their mobile phones to alleviate or manage EFC.

Mobile phones and safety strategies

Participants incorporated mobile devices into a suite of protective behaviors to alleviate or manage the EFC they experienced while traveling home from university. In the context of "being-on-the-phone" (Hartley & Richardson, 2021, p. 71), participants would call acquaintances during journeys in the late afternoon or early evening. This was particularly the case when participants were walking through those "in-between spaces," such as parks or alleyways, which felt riskier in the dark, and which lend themselves to mobile phone usage (Cumiskey & Brewster, 2012). These in-between spaces were not always sites that participants could simply evade (see Saker et al., 2024). In response to this necessity, participants would use their mobile devices to speak to someone else beyond their immediate physical setting. As P3 (22, Interview) commented, "[in] the winter I would always be ringing someone because it was a public footpath as

well, and there would be lots of men jogging, and it always seemed to be older men jogging.

Instrumental phone calls operated in two separate but interrelated ways. First, the act of being on the phone functioned as a "do not disturb" sign for nearby strangers who might attempt to engage participants in unwanted conversation (Campbell & Park, 2008). Second, phone calls worked to help participants feel safer, by having "somebody" on the "phone while walking" (P12, 23, Interview). As a corollary to this, we found that the outline of "absent presence" (Gergen, 2002) shifted in the context of mobilities, EFC and darkness. Traditionally speaking, "absent presence" occurs when a person physically inhabits one locale but is cognitively able to transport themselves elsewhere through the audible use of their mobile device. In contrast, our participants did not use their mobile phones to transcend physical space *per se*, but to extend their "corporeal schema" (see Merleau-Ponty, 1945/2014) through the acoustic company of an absent acquaintance. The "mediated presence" (Thulin et al., 2020) that followed, therefore, allowed participants to experience a journey that felt shared, which mitigated the impact of being alone in the dark, and while navigating those in-between spaces, as detailed above.

Though making a phone call in transit could minimize the fear felt on the fly (Cumiskey & Brewster, 2012), not all participants employed their mobile devices in this way. For some participants, the protective function of this technology encompassed the communicative ability to share their location with a defined group of friends and family members. For participants like P4 (21, Interview) the sharing of one's "live location" has gradually become a "normal" practice that is part and parcel of wayfaring home in the evening, and for the following reasons. First, sharing one's location with housemates indicated that participants were about to leave their current position and begin making their way home. As P5 (29, Interview) explained, "I always text my partner when I am leaving the office, so he knows when I am coming home." Second, the sharing of one's "live" location through social media, such as WhatsApp, or in-built apps such as Find My friends, simulated the kind of co-location observed with phone calls. Participants felt like they were being seen, and at a time when being seen was critical. Third, participants were able to communicate that they had reached their destination without having to actively call someone. This final confirmation was frequently requested by members of participants' social circle. As P3 (22, Interview) clarified, "because I am the youngest on the course, I think a lot of [my classmates] feel a little protective over me, so they're always really conscious, text me when you get home." This desire for confirmation was appreciated by participants, who often made similar requests to friends and family members when the roles were reversed.

Allied to the locative use of mobile devices as outlined above, we would suggest participants employed their mobile devices as an informal LBSN that hinged around embodied disclosure as a protective behavior. In doing so, participants mirrored the kind of locative activity previously associated with seminal LBSNs like Foursquare (see Evans & Saker, 2017). Nonetheless, there are also marked differences that illuminate the nuanced function of this informal LBSN. Though Foursquare could function as a playful *aide-mémoire* (Evans & Saker, 2017), this was not the case for our participants and in the context of EFC. Participants did not share their location as memories that could be algorithmically converted into future locative suggestions (ibid), but as evidence for the police should something unthinkable happen. As P9 (18, Interview) illuminated, "if something does happen to you at least the police can, I don't know, they might see." And this is precisely how such data has functioned. "In the case of Mollie Tibbetts, her mobile phone, Fitbit and social media accounts were used as a 'digital footprint' to help locate her body" (Hartley & Richardson, 2021, p. 66).

This reflexive understanding of mobile phones and locative data challenges the suggestion that mobile media lead women to incorrectly believe that they will "be rescued from a dangerous situation simply by making a call" (Cumiskey & Brewster, 2012, p. 591). In the context of our project, participants were aware of the limits associated with their handsets vis-à-vis personal safety. The value of sharing one's location stretched beyond the perception of being "safer simply because other people are aware of our location" (Hartley & Richardson, 2021, p. 74). For some participants, the sharing of location *à la* LBSNs was not just about documenting their physical location, but more importantly affirming embodied experience of place predicated on the social connections associated with mobile media (Hjorth & Pink, 2014). As P9 (18, Interview) explained:

> I just like the fact that me and my friends are very protective of each other so we will ask each other when we get home, we will call each other. Or even my friend's parents they will ask me or tell me, like, call my friend, their daughter, when you get home, so we know you are safe.

By checking-in to indicate physical safety, participants were reminded that they had friends and family who cared about their whereabouts and well-being – that their location mattered.

Finally, some participants utilized these devices in the form of "being-with-media" (Hartley & Richardson, 2021, p. 71) to listen to music (Bull, 2000). This is not to suggest that these participants were fully disconnected from their surroundings (Gergen, 2002). Much like LBSN usage (Evans & Saker, 2017), this use of technology provided a different way of reflecting on spatial connections. As P5 (29, Interview) contemplated, "there have been cases before where I've thought, "God, I shouldn't have had my headphones in," or, "I

should not be wearing headphones or listening to music late at night." In response to these contemplations, participants would either "turn down the music" (P18, 31, Interview), so they could still hear what was going on around them, or "have one earphone in" (P8, 20, Interview). Perhaps more importantly, for other participants the significance of listening to music was less about protective behaviors (Bull, 2000), and more about continuing to do what one enjoys. As P5 (29, Interview) lamented:

> I have my headphones on, and I listen to music, not because I think that it's the smartest and safest thing to do, but because I think that there's only so much I can do to make myself more safe … I've made a conscious decision that I just don't think that that's something that I should have to give up to feel safe.

In this example, the act of listening to music became a form of resistance against the relentless requirement to modify one's behavior, as well as the boundaries of protective behaviors. We do not, therefore, contextualize this act as "risk taking" stemming from a false sense of safety (Cumiskey & Brewster, 2012), but rather as a reasoned understanding about the limits of mobile technologies as protective behaviors, and a cognizance of when these boundaries should be challenged for something more important.

In the next section, we move on to explore whether the gathering of experience data in situ provided a space for participants to critically reflect on the embodied impact of the protective behaviors outlined above.

Experience methods as locative media

For some participants, a proximate consequence of using our chatbot to document spatial experience in-situ was the qualitative bearing it had on their spatial awareness. These participants became "more conscious" of their "surroundings … instead of zoning out on the bus or on the tube" (P2, 23, Interviews), which then made them "more vigilant" about how they felt in these environments (P1, 29, Interviews). While this response could be interpreted as mechanistic, given that the chatbot asked participants to reflect on their mobilities as they pertain to EFC, we would suggest that the cumulative nature of experience methods is significant and underscores its suitability. Experiential awareness is not emblematic of associated reflections *per se*, but rather the recursive nature of these reflections across a two-week period, which might have gone unnoticed by more traditional methods (McConnell, 1997). Participants experienced an amplified sense of "dissociated vigilance" (Goffman, 1971, p. 43), which they were then able to reflect on during interviews.

Importantly, this knowledge implicitly cast a revealing and meaningful light on those self-protective behaviors and mobilities that were routinely performed without contemplation. As P18 (31, Interview) commented:

> It definitely made me reflect on the behaviours. So, for example, the looking behind me, the lowering my music, made me reflect on behaviours that I hadn't really thought too much about before.

The use of mobile devices to document experiences in situ evidently bears similarities with the unintended consequences associated with Foursquare (Saker & Evans, 2016). Without being probed, P18 may not have scrutinized her behaviors, precisely because these behaviors are perfunctory responses to urban travel developed over considerable time (Turner & Torres, 2006). Only by reflecting on these behaviors, and in this case through the apparatus of experience methods, were participants able to observe these behaviors as extending beyond reasonable responses to this or that environment. This also suggests a subtle reframing of Goffman's (1971) "dissociated vigilance" (p. 43). The heightened vigilance experienced by our participants was not so much detached from their everyday lives *per se* but instead provided a platform to observe those recurring facets that may otherwise have remained "dissociated" through repetition. We refer to this process as "associated vigilance."

Associated vigilance influenced participants in several ways that warrant consideration. For some participants, it provided a meditative space to ponder the behaviors or mobilities that made them "feel safer" (P12, 23, Interview), which was not something they had necessarily done before. As P8 (20, Interview) explained, "the whole bot experience made me really reflect a lot on it, which was nice. It was nice to actually sit down and really think about these questions and be like, "Oh, I did feel safe, or in these situations I may not have felt as safe as others." As a corollary to this, participants were able to consider whether they performed "certain things out of a place of fear or . . . because it's how I normally do this" (P7, 26, Interviews). In either case, "associated vigilance" illuminates the impact EFC can have on mobilities and associated behaviors (Currie, 1994; Klodawsky & Lundy, 1994; Woolnough, 2009), which in this instance occur beyond the university campus as the main site of student activity.

Finally, though our research did not attempt to explicitly intervene in the phenomena being observed, for some participants, our methodological approach correspondingly shaped how they felt about EFC in certain settings. The following example underlines this point. While waiting for a bus late in the evening, and while wishing that "there had been more lights on the street," P2 (23, Interview) "remembered that the app asked a question about taking a photo" of her surroundings, which she decided to do for the following reason:

> This is a little bit paranoid, but like when I feel unsafe, I was able to send my location to someone at the university. Then I felt safer. Like you know that share location feature on Messenger and Uber? Someone will know where you are, so you feel safe.

By using her mobile device to record this experience, the EFC P2 felt was mitigated by the act of "being-on-the-phone" (Hartley & Richardson, 2021, p. 71) and the "absent presence" (Gergen, 2002), or "mediated presence" (Thulin et al., 2020) this implied. P2 was able to adopt the subject position of an onlooker. It is through this shift, we would suggest, that she was able to simulate a sense of cognitive distance from her concrete surroundings and co-location with an absent other, which corresponds with the kind of protective behaviors outlined above. In either case, this belief, however illusory, lessened the intensity of the EFC that had prompted her to engage with our chatbot.

Conclusion and discussion

This article has examined (1) the protective behaviors women students attending an urban university exhibit while commuting to and from an urban campus; (2) whether there are settings where these students use their mobile phones to alleviate or manage EFC; and (3) whether the gathering of experience data in situ provided a space for students to critically reflect on the embodied impact of these behaviors.

Our participants presented a range of protective behaviors (Tewksbury & Mustaine, 2003; Woolnough, 2009) in the setting of their daily mobilities, and while traveling to and from university. These behaviors commonly hinged on mobility decisions to avoid moving through the "urban darkness" alone (Hartley & Richardson, 2021). Decisions included what time participants would need to leave campus, as well as the mode of transport to take to limit ambulating through poorly lit and remote urban environments. The considerable distance many participants lived from university was a significant factor. Related behaviors also affected how social arrangements were approached. Participants ensured they traveled with fellow students and that they arrived home at a suitable hour.

Not all settings, of course, could always be avoided (Saker et al., 2024). Participants frequently encountered those "in-between spaces" that were a necessary part of their journey to and from university. In these instances, mobile devices were used to alleviate and manage EFC (Hartley & Richardson, 2021), while co-constituting a more manageable experience of place (Hjorth & Pink, 2014). Participants would ring a physically absent friend while walking (Rader, 2008) to signal to strangers that they did not want to be disturbed, as well as to experience the comfort of "mediated presence" (Thulin et al., 2020) while ambulating those "in-between spaces." Participants also frequently used their mobile devices to share their location with a defined list of friends. We contextualize this usage through the canon of locative media (Evans & Saker, 2017; Frith, 2014). The application of sharing one's location to lessen EFC, however, was not simply about being seen, but also the evidence this practice might provide should something unthinkable happen (Hartley &

Richardson, 2021). This awareness of locative data provides a response to the suggestion that mobile phones might make women feel falsely safe in settings that they shouldn't, which might exacerbate risk-taking (Cumiskey, 2011). In the context of our research, participants displayed a reflexive awareness about the limits of mobile phones and physical safety, as well as how locative data might function to determine their final movements.

Developing this point, other participants chose to use their mobile devices to listen to music as they moved through those "in-between spaces." Yet such behaviors did not form a connective tissue with "absent presence" (Gergen, 2002) *per se* but instead reaffirmed the limits of their situation. The decision to use one's mobile device to listen to music when society advises not to, became a deviant act that challenged the physical toll associated with protective behaviors. In these instances, the decision to enjoy music was deemed more important than the illusion of safety, just as it implicitly critiqued the burden of safety being placed on the victim (Campbell, 2005). As P5 (29, Interview) candidly put it, "I just don't think that that's something that I should have to give up."

Finally, the gathering of experience data in situ provided a critical space for participants to reflect on the embodied impact of these protective behaviors (Woolnough, 2009), which addresses a notable gap in the surrounding literature. Participants were able to distance themselves from the embodied behaviors that had developed over time, as well as consider the ways these behaviors limited their daily lives (Kinsey, 1984). This space permitted participants to be more discerning about which behaviors were performed out of habit, and which behaviors were rational responses to threatening situations. And while we did not seek to intervene in the experience of EFC, mobile phone usage for some participants became a protective behavior through the "mediated presence" (Thulin et al., 2020) of the research team itself.

In conclusion, our article sheds important light on the protective behaviors adopted by women students attending an urban university, with particular attention to mobile devices and their role in managing EFC. We highlight the varied ways women students utilize these technologies to alleviate EFC, as well as assert some control over safety in settings that fail to provide sufficient protection (Young, 1980). Our findings underscore that while mobile devices provide a form of mediated safety through the sharing of location and the mediated presence of physically distant others, there are limits to these technologies. In doing so, we underline the importance of surfacing broader urban and infrastructure characteristics that contribute to EFC, rather than placing the burden on the individual – particularly when these activities are undertaken in the pursuit of education.

There are, however, limitations to this project. Our purposeful sampling strategy prioritized diversity regarding age, programme of study and whether participants were full-time or part-time but did not systematically account for racial diversity.

This limitation highlights the need for future research to explore the intersection between women's EFC and racial identity.

Overall, this study contributes to the growing body of research on the gendered nature of urban space, while emphasizing the need for policies that reduce the reliance on protective behaviors that are flawed. We argue that studies on women students and EFC should inform surrounding discourse, particularly in relation to how institutions can better support women students within their wider mobilities. Forthcoming research should build on these insights to help urban universities develop a deeper understanding of student life beyond the campus and identify strategies for creating more inclusive educational space that are not constrained by the presence of fear.

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