



RISKY PLACES FOR CRIME- SAFEPLACES NETWORK SEMINAR SERIES

MEASURING FEAR IN RISKY PLACES

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OUTLINE

- Comparing two types of real-time data collection on experiences: Ecological Momentary Assessments (EMA) and Experience Sampling Method (ESM)
- Recent studies on use of smartphone-based EMAs to collect data on fear of crime
- Prospects of EMAs for research and practice regarding risky places
- Challenges of using EMAs

EMA

Researchers take repeated samples of study subjects' real-time behaviors and experiences in the subjects' natural environment via self-reports

Its purpose is to:

capture emergence of an individual-level phenomenon in its natural environment

Its measures are:

Time contingent

Signal contingent

Event contingent

It can collect information via paper diaries, electronic diaries, e-mail, SMS, smart device apps, and physiological sensors

ESM

Researchers take repeated samples of study subjects' real-time behaviors and experiences in the subjects' natural environment via self-reports

Its purpose is to:

identify the regularities in individuals' behaviors, emotions, and perceptions in their natural environment

Its measures are:

Time contingent

Signal contingent

It can collect information via paper diaries, electronic diaries, e-mail, SMS, smart device apps, and physiological sensors

ECOLOGICAL MOMENTARY ASSESSMENTS (EMA) VS. EXPERIENCE SAMPLING METHOD (ESM)

Ecological momentary assessment of individuals' fear in real time, in individuals' natural environments

Vs.

Static measurements of fear via traditional methods:

“How safe do you feel or would you feel being out alone in your neighborhood at night?”

“How afraid (worried) are you of crime?”

“How much do you fear crime X on a scale from very worried to not at all worried?”

SOLYMOSI, R., BOWERS, K., & FUJIYAMA, T. (2015). MAPPING FEAR OF CRIME AS A CONTEXT-DEPENDENT EVERYDAY EXPERIENCE THAT VARIES

Study Location	Camden and Islington, UK
Sample/Study Duration	Six people from a university setting/approximately 4 weeks
Survey timing	*Time-based (when pinged, up to 4 times a day) *Event-based (retrospective in high-risk situations)
Variables measured	Single item fear of crime: <i>In this moment, how worried are you about becoming a victim of crime?</i>

CHATAWAY, M. L., HART, T. C., COOMBER, R., & BOND, C. (2017). THE GEOGRAPHY OF CRIME FEAR: A PILOT STUDY EXPLORING EVENT-BASED PERCEPTIONS OF RISK USING MOBILE TECHNOLOGY

Study Location	Queensland, Australia
Sample/Study Duration	20 students from a university setting/3 months
Survey timing	*Time-based (participant comes close to a reference point)
Variables	<ol style="list-style-type: none"> 1) Frequency of worry 2) Likelihood of personal victimization 3) Attitudes about consequences of victimization 4) How often they believed that crime would occur in the area during the next month 5) Perceived control over crime 6) Attitudes about social and physical incivility 7) Informal social control and social capital

CHATAWAY, M. L., HART, T. C., & BOND, C. (2019). THE SOCIAL-PSYCHOLOGICAL PROCESS OF FEARING CRIME: DEVELOPING AND TESTING A NEW MOMENTARY MODEL OF VICTIMISATION WORRY

Study Location	Queensland, Australia
Sample/Study Duration	72 young adults/3 months
Survey timing	*Time-based (surveys were sent every three days, at two random time points, with a 5-hour interval in between each time-point).
Variables measured	<ol style="list-style-type: none">1) Frequency of worry2) Likelihood of personal victimization3) Attitudes about consequences of victimization4) How often they believed that crime would occur in the area during the next month5) Perceived control over crime6) Attitudes about social and physical incivility7) Informal social control and social capital

KRONKVIST, K., & ENGSTRÖM, A. (2020). FEASIBILITY OF GATHERING MOMENTARY AND DAILY ASSESSMENTS OF FEAR OF CRIME USING A SMARTPHONE APPLICATION (STUNDA)

Study Location	Malmö, Sweden
Sample/Study Duration	191 undergraduate students/14 days
Survey timing	*Time-based #1 (signal contingent surveys/3 times a day/stratified random sample) *Time based (interval contingent –once a day) *Event contingent
Variables measured	Current situation: <i>where</i> the participants were located (functional location), <i>what</i> they were doing, and <i>who else</i> they were with. Perceived safety, worry of crime and how likely they believed they were to become victim of a crime at the moment. Also included a qualitative element to describe Feasibility indicators: <i>number of surveys; duration of participation, compliance rate (#of self-reports/# of surveys sent), correlates of participation.</i>

Irvin-Erickson, Y., Malik, A. A., Kamiran, F., & Natarajan, M. (2020). Utility of ecological momentary assessments to collect data on fear of crime.

Aim of Study: Examine the feasibility of administration of Ecological Momentary Assessments (EMAs) via our custom built smartphone application information on individuals' experiences of public transit, including their fear of crime victimization

Pilot location: Lahore, Pakistan

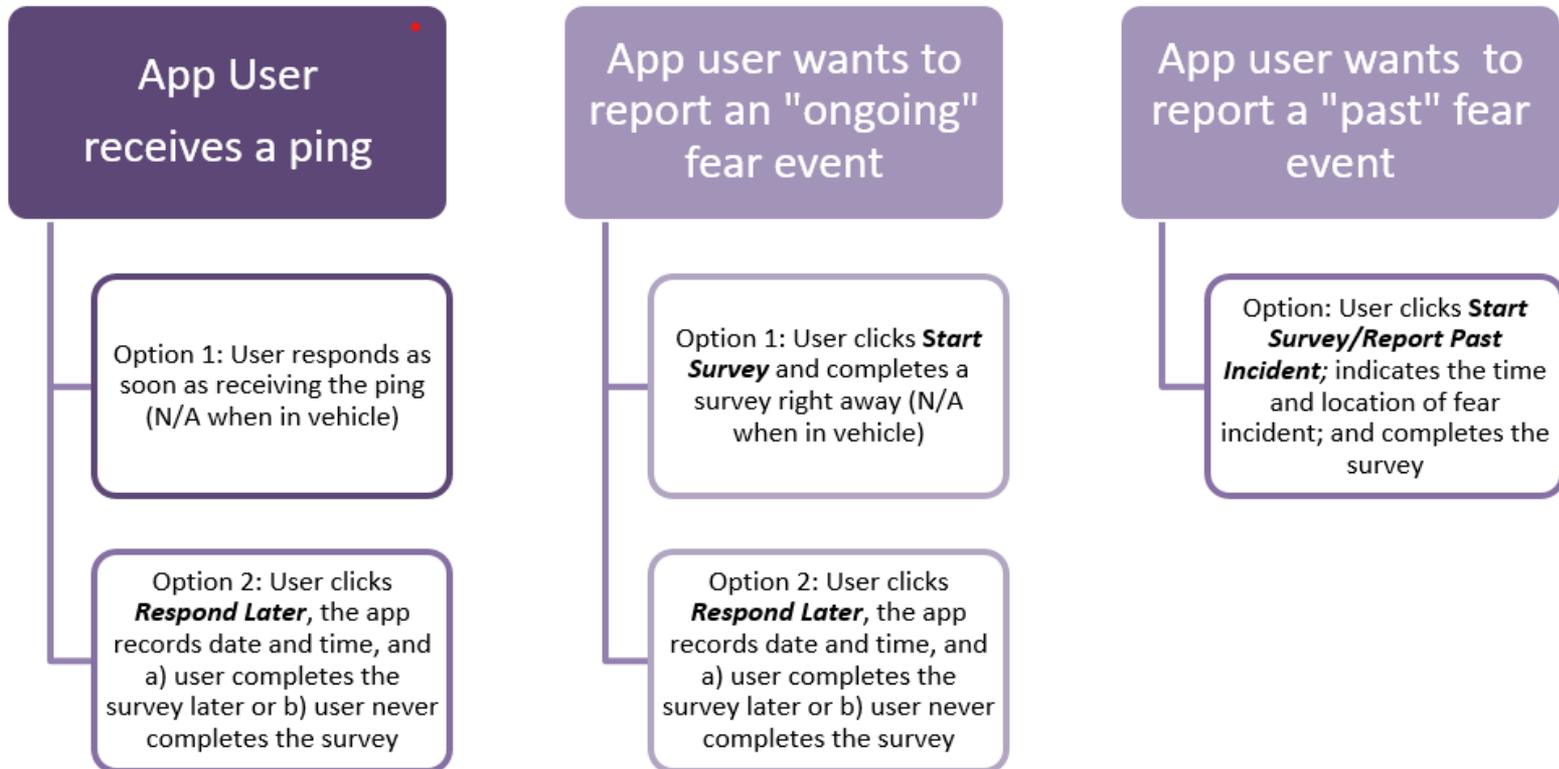
of study participants: 6 (3 females and 3 males)

Duration of pilot data collection: 4-days, November 2017

of EMAs (# of total surveys completed): 220

Funder: World Bank & SVRI (USD 100,000)

Survey Response Options



EMA Survey Instrument Question Categories

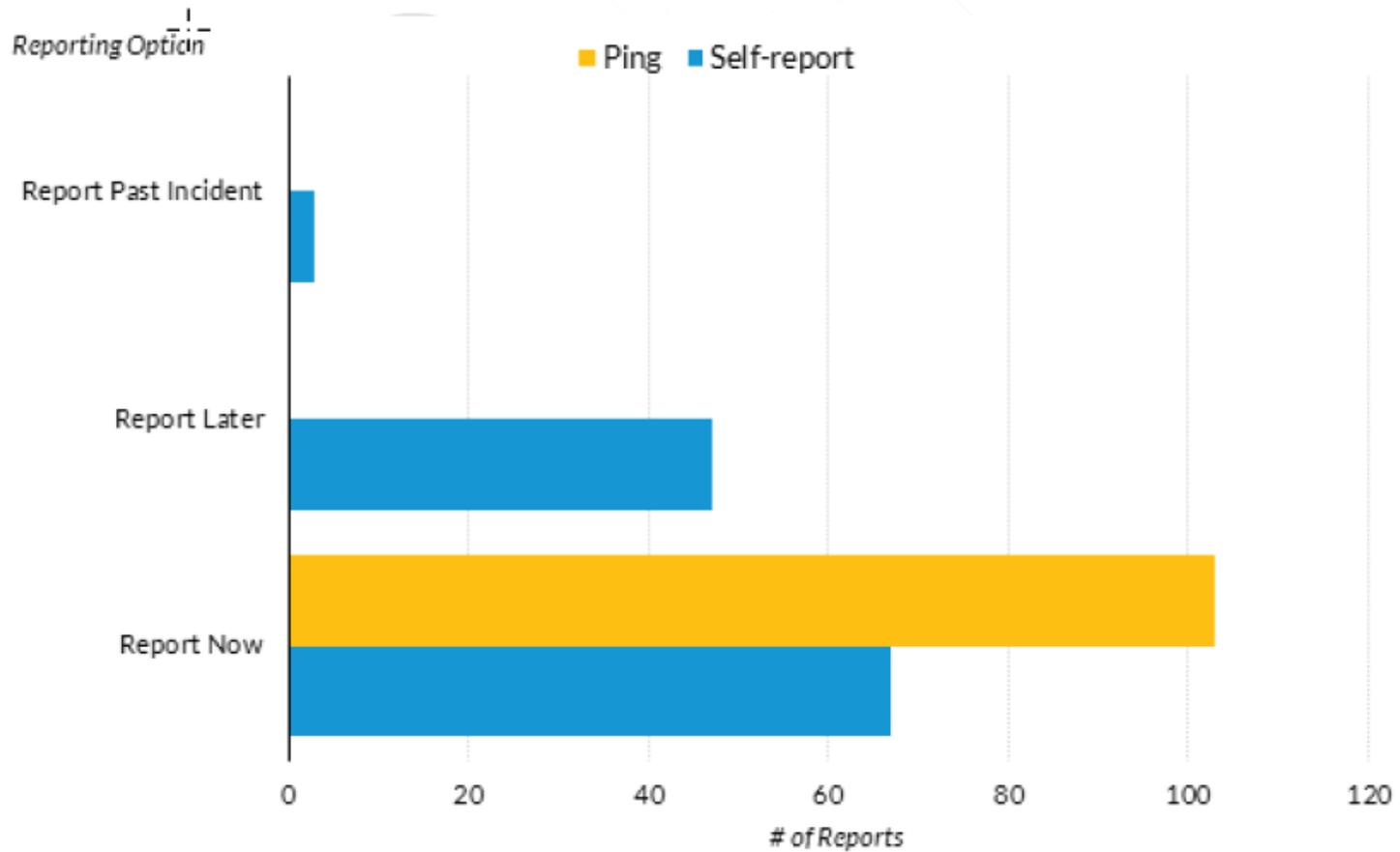
1. A Likert scale question of **how fearful** user is (was) to become a victim of sexual harassment, mugging, physical assault, or pickpocketing (on a scale of 1 to 5, 1 being not at all fearful and 5 being extremely fearful)
2. A Likert scale question of **how likely the** participants think (thought) they can (could) become a victim of sexual harassment, mugging, physical assault, or pickpocketing (on a scale of 1 to 5, 1 being not at all likely and 5 being extremely likely)
3. Participants were asked to choose from several *walking, waiting at a transit stop, or traveling in a vehicle* response categories to identify the **stage of the respondent's journey** at the time of each reporting
4. Participants were asked to choose from a list of indicators to **describe their environment** specific to different stages of journey
5. Participants were asked to choose from a list of **suggestions** to provide input about what would have made their experience a better experience or improve the conditions at the moment of their experience

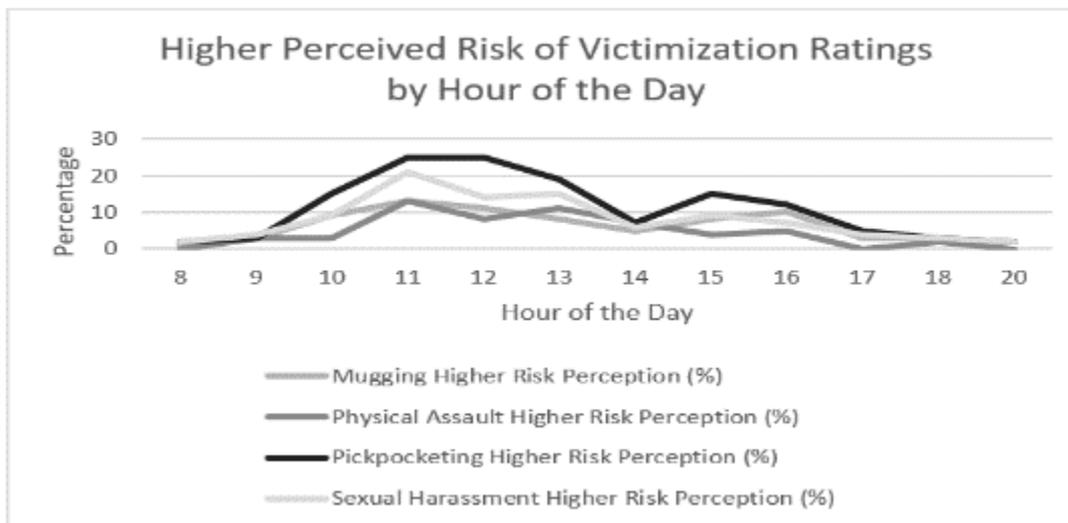
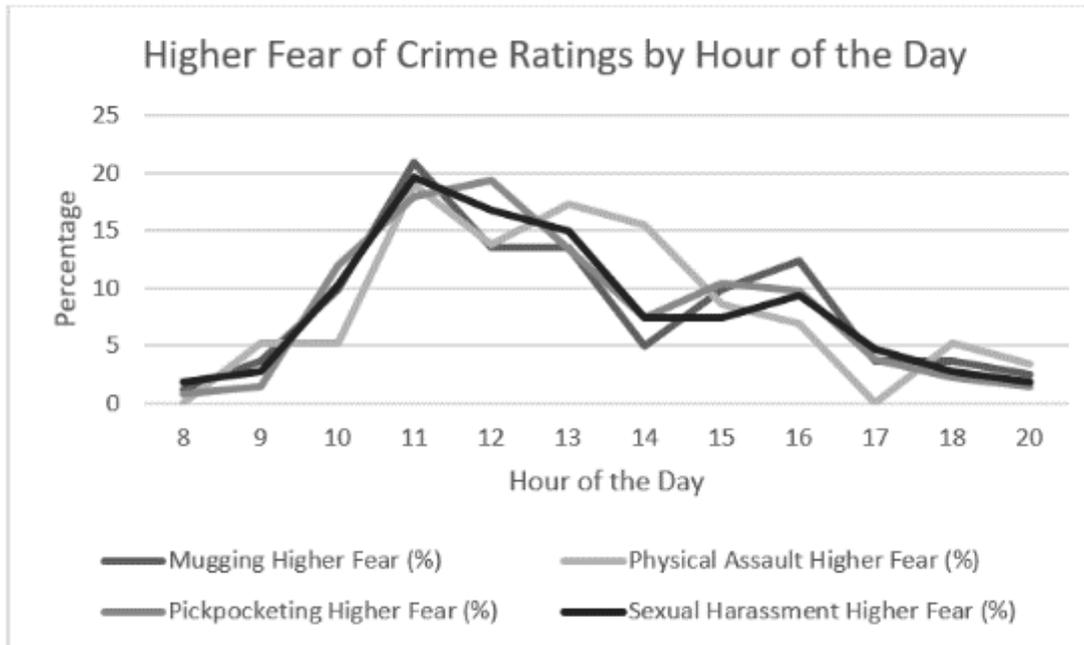
Pilot Study Participants

- Convenience sample of 6 university students (3 male and 3 female, ages ranged between 23 and 37)
- All participants received a one-day training and an informed consent was sought from each participant
- Training included: Introduction to the project, risks associated with participation, session with project's on call psychologist
- The participants agreed to participate in the study for four days, and were randomly assigned to a combination of different routes to travel around the city of Lahore

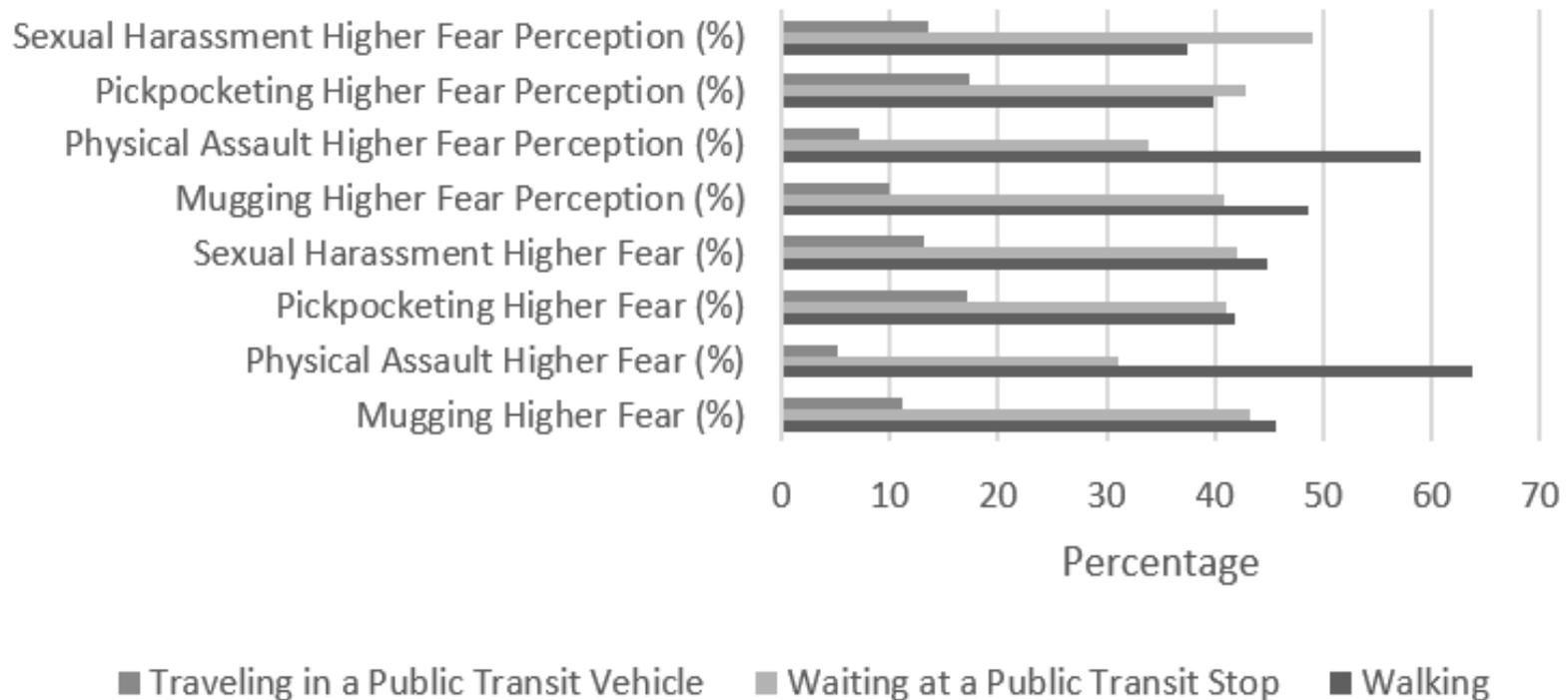
EMA Response Characteristics

Figure 5. Number of Reports by Reporting Type





Higher Fear and Perceived Risk of Victimization Ratings by Journey Stage



OBSERVATIONS IN HIGH FEAR CONDITIONS AND SUGGESTIONS FOR IMPROVEMENT

APP USERS' OBSERVATIONS IN HIGH FEAR SITUATIONS (WALKING OR WAITING AT A STOP)

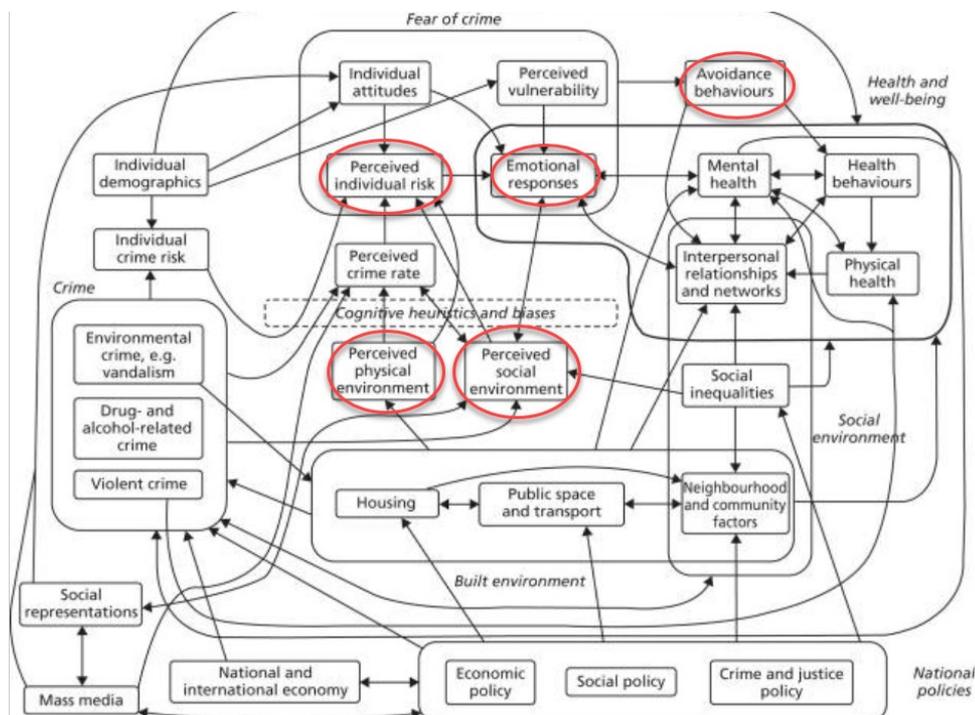
- Too many pedestrians
- Persons observed to be under the influence
- Trash lying around and graffiti
- Too many street vendors
- Taxi stands too close to bus stops

APP USERS' SUGGESTIONS TO IMPROVE CONDITIONS IN HIGH FEAR SITUATIONS (WALKING OR WAITING AT A STOP)

- Placement of signs explaining the laws and penalties about crime
- Signs and instructions for helplines
- Increased security and police personnel
- Improving the overall safety and cleanliness of their environment

PROSPECTS OF SMARTPHONE BASED EMAs FOR CRIMINOLOGY

*EMAs prospect for collection of experiential data at risky places and to identify places that induce fear and perceived as high risk



Source: Lorenc T, Petticrew M, Whitehead M. (2014)

*EMAs and situational approaches to crime prevention at risky places

*Ecological momentary assessments as interventions



Duration of Data Collection

LENGTHY SIGNAL OR INTERVAL-CONTINGENT STUDIES MIGHT BE TOO BURDENSOME



Construction of EMAs

CONSIDER THE MOMENTARY NATURE OF ASSESSMENTS WHILE DEVISING QUESTIONS

THE MEDIUM/DEVICE UTILIZED BY PARTICIPANTS CAN LIMIT THE QUESTION LENGTH AND SPACE FOR INSTRUCTIONS



Measurement Issues

REACTIVITY & VALIDITY: BE ALERT FOR CHANGE OF PARTICIPANT RESPONSE DUE TO EMA EXPERIENCE

COMPLIANCE: CONSIDER STRATEGIES FOR INCREASING PARTICIPANTS' COMPLIANCE WITH RECURRING MEASUREMENTS



Inclusion & Beneficence

CONSIDER ACCESS ISSUES AND NEEDS OF PARTICIPANTS TO FULLY ENGAGE IN EMAS

CONSIDER STRATEGIES TO REDUCE NEGATIVE EXPERIENCES DUE TO EMA USE AND IDENTITY RESOURCES FOR PARTICIPANTS

CONSIDERATIONS FOR USE OF EMAS

THANK YOU! QUESTIONS?

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Situational Indicators

TABLE 2. LIST OF SITUATIONAL INDICATOR RESPONSE OPTIONS PROVIDED IN THE APP SURVEY

JOURNEY STAGE	
Walking/Waiting at a Transit Stop	Traveling in a Vehicle
I am close to a taxi stand	The vehicle is crowded
I am close to a street market	There are not enough seats in the vehicle
I am close to the entertainment district	There are beggars in the vehicle
There are vendors around	There are vendors in the vehicle
There are many pedestrians around	There is loud music playing in the vehicle
There are few pedestrians around	I see drunk people in the vehicle
There are vacant lots around	The vehicle is in poor condition
I see buildings in poor conditions	I hear verbal altercations between people
I see graffiti	Driver made unscheduled stops
I see drunk people around	Driver is driving fast
There is not enough street lighting	Other (please specify)
Other (please specify)	

Improvement Suggestions

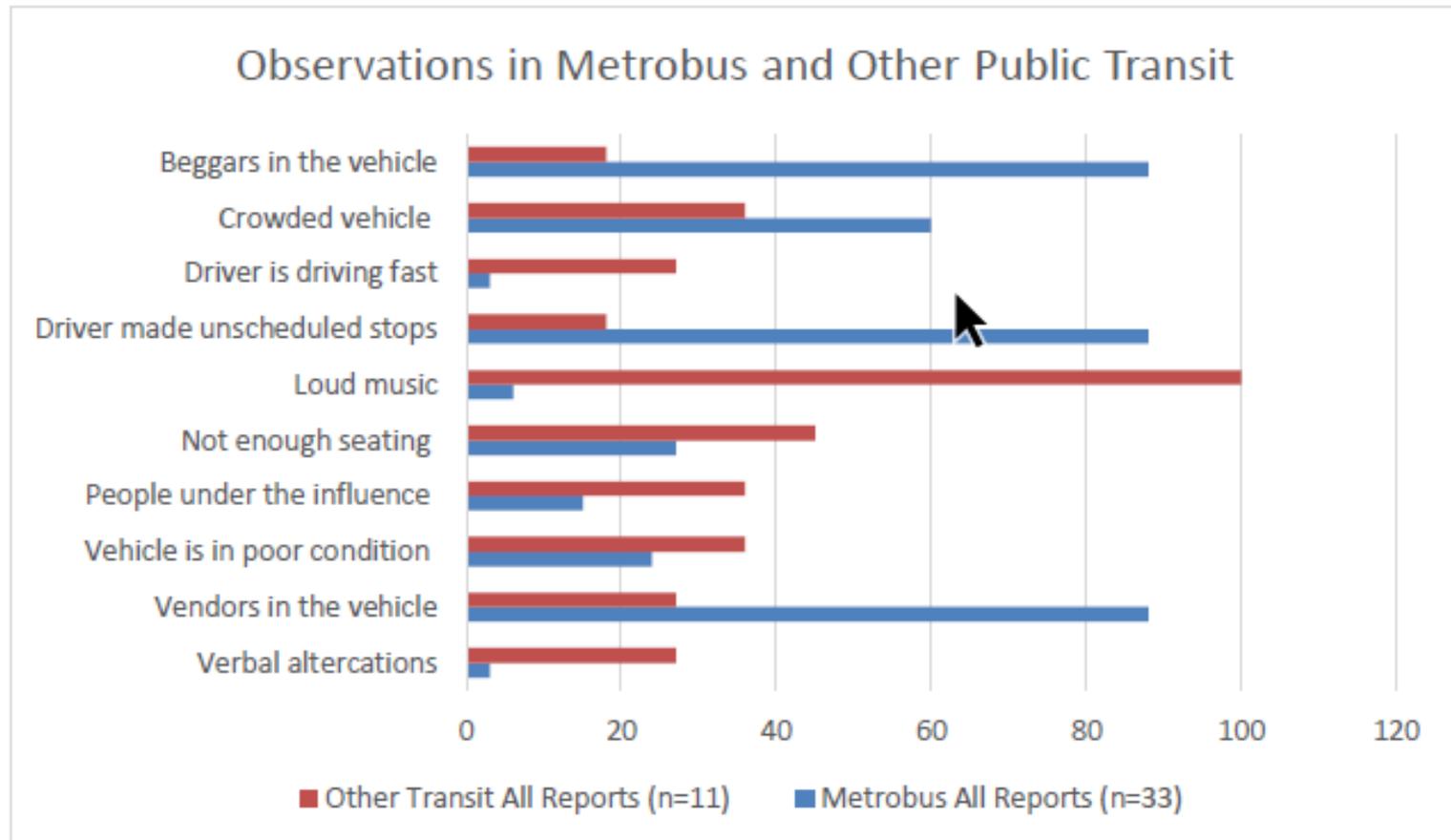
TABLE 3. LIST OF IMPROVEMENT SUGGESTION RESPONSE OPTIONS PROVIDED IN THE APP SURVEY

JOURNEY STAGE	
<p>Walking/Waiting at a Transit Stop</p> <ul style="list-style-type: none"> Post signs for laws and penalties for crimes Post signs and instructions for safety and helpline numbers Increase patrolling by transport security staff Increase overall security presence Provide a safer and cleaner environment Install CCTV (cameras) Increase police patrol Install emergency phones at stations/stops platforms Control crowdedness Post instructions for victims and witnesses of crime Improve street lighting Send safety alerts through mobile phones Other (please specify) 	<p>Traveling in a Vehicle</p> <ul style="list-style-type: none"> Post signs for laws and penalties for crimes Post signs for safety and helpline numbers Provide more seating Improve conditions for people standing Improve vehicle conditions Install CCTV (cameras) Increase patrols/checks in the vehicle Run women only vehicle services Provide alerts for victims/witnesses Improve lighting Send alerts through mobile phones Provide request stop programs after dark Other (please specify)

Pilot Routes

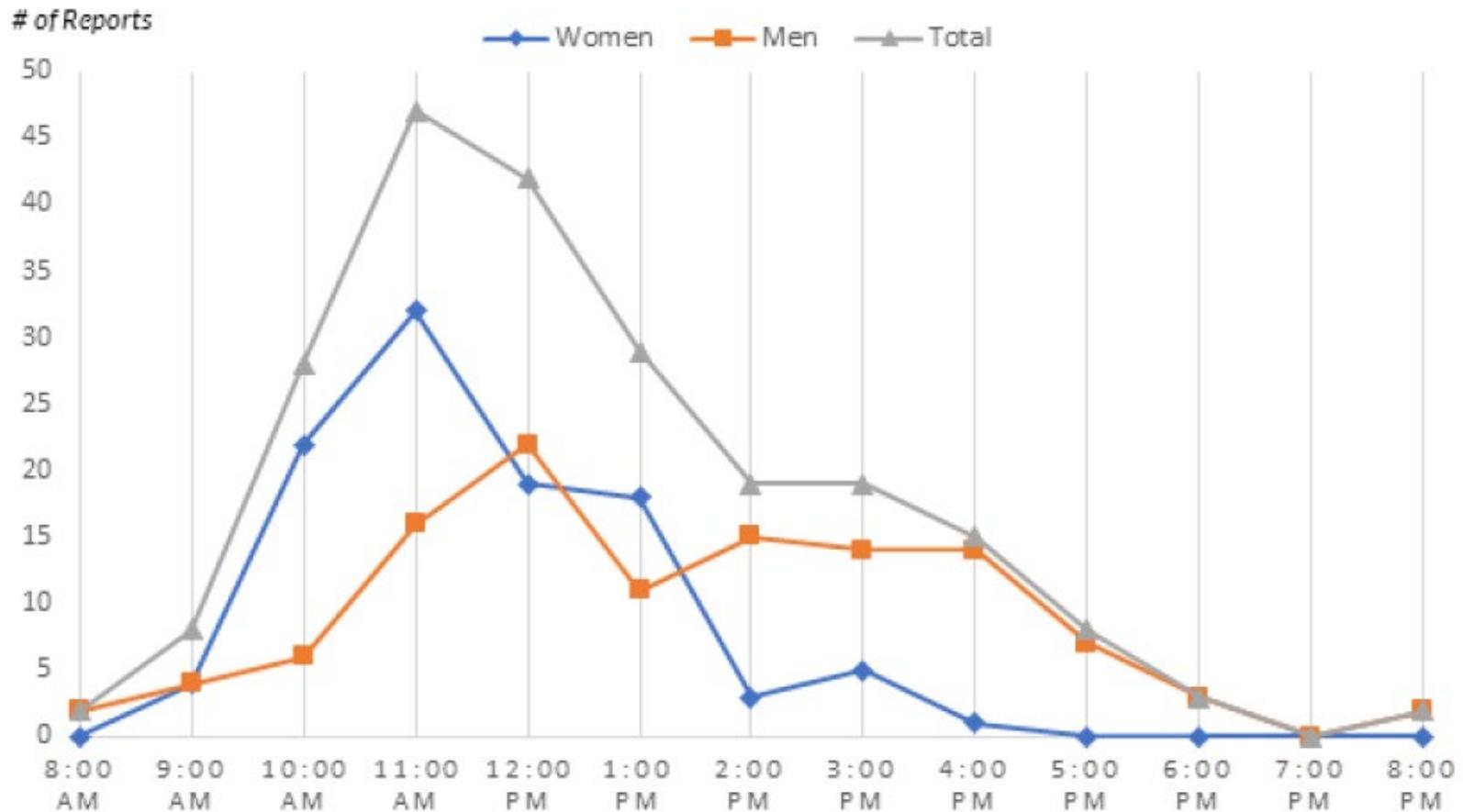
	Male #1	Female #1	Male# 2	Female#2	Male #3	Female #3
Day 1	Sheranwala Gate→RA Bazar→Chungi Amar Siddhu→Gajju Matta	Thokar Niaz Baig→ Doctor's Hospital→ Kalma Chowk→ Shahdara	Mohlanval→ Multan Chungi→ Canal→ Shahdara	Gajju Matta→ Shahdara→ Kashmiri Gate	Kaana Nahu→ Gajju Matta→ Shahdara	Rehmat Chowk Gondal Chowk→ Ittifaq Chowk
Day 2	Thokar Niaz Baig→ Doctor's Hospital→ Kalma Chowk→ Shahdara	Sheranwala Gate→RA Bazar→Chungi Amar Siddhu→Gajju Matta	Shahdara→ Qartaba Chowk→ Governor House→ Shimla Hill	Ghazi Chowk→ Kalma Chowk→ Babu Sabu→ Liaqat Chowk	Gajju Matta→ Qartaba Chowk→ Railway Station→ Chouburji Bus Stop	Kaana Nahu→ Gajju Matta→ Shahdara
Day 3	Gajju Matta→ Shahdara→ Taxali Gate	Bhatta Chowk→RA Bazar→Qainchi→Gajju Matta	Gajju Matta→ Shahdara→ Kashmiri Gate	Mohlanval→ Multan Chungi→ Canal→ Shahdara	Nishat Colony→RA Bazar→ Civil Secretariat→ Shahdara	Gajju Matta→ Qartaba Chowk→ Railway Station→ Chouburji
Day 4	Bhatta Chowk→RA Bazar→Qainchi→Gajju Matta	Gajju Matta→ Shahdara→ Taxali Gate	Ghazi Chowk→ Kalma Chowk→ Babu Sabu→ Liaqat Chowk	Shahdara→ Qartaba Chowk→ Governor House→ Shimla Hill	Rehmat Chowk Gondal Chowk→ Ittifaq Chowk	Nishat Colony→RA Bazar→ Civil Secretariat→ Shahdara

Figure 30. All Participant Observations in Metrobus vs. Other Public Transit Vehicle



EMA Response Characteristics

Figure 6. Number of EMA Reports by Time of the Day



SELECT RESULTS: # OF HIGH FEAR REPORTS BY SEX

TABLE 5. NUMBER OF HIGH FEAR* RATINGS BY EACH PILOT PARTICIPANTS

	Total Reports	Sexual Harassment High Fear Reports	Physical Assault High Fear Reports	Mugging High Fear Reports	Pickpocketing High Fear Reports
Participant #1	47	34	36	15	0
Participant #2	37	37	3	0	0
Participant #3	35	11	3	6	1
Participant #4	34	0	1	0	0
Participant #5	34	11	5	10	6
Participant #6	33	23	9	11	0

Note: High fear refers to ratings of "extremely fearful" or "fairly fearful." Participants 2,4, 6 are female and participants 1, 3, 5 are male.

STATIONS WITH HIGHER FEAR REPORTS



TABLE 6. MEAN TOTAL FEAR SCORES BY STAGE OF THE JOURNEY

Journey Stage	N	Mean	Standard Deviation	Standard Error
Walking	83	10.57	4.30	.47
Waiting at a Stop	92	9.44	4.13	.43
Traveling in a Vehicle	43	8.13	3.50	.53
Total	218	9.61	4.16	.28

Chataway et al. (2017) measures

- Frequency of worry about personal victimisation was measured using a 4-item response set, where 1 indicates “Not once in the last month” and 4 corresponds to “Everyday” (M $\frac{1}{4}$ 1.57; SD $\frac{1}{4}$ 0.60).
- Likelihood of personal victimisation was measured on a 7-point scale, where only the endpoints were labeled: 1 $\frac{1}{4}$ “Definitely not going to happen” and 7 $\frac{1}{4}$ “Certain to happen” (M $\frac{1}{4}$ 3.04; SD $\frac{1}{4}$ 0.96).
- Attitudes about the consequences of personal victimization were also measured on a 7-point scale, with only the endpoints labeled: 1 $\frac{1}{4}$ “Not at all” and 7 $\frac{1}{4}$ “To a very great extent” (M $\frac{1}{4}$ 4.70; SD $\frac{1}{4}$ 1.66). Using the same 7-point scale, participants were asked about the extent to which they had control over becoming a victim of a personal crime (M $\frac{1}{4}$ 3.42; SD $\frac{1}{4}$ 1.52). Finally, participants were asked how often they believed that crime would occur in the area during the next month (i.e., belief). A 4-point scale that ranges from 1 “Never in the next month” to 4 “Every day in the next week” was used to measure this dimension of fear (M $\frac{1}{4}$ 1.89; SD $\frac{1}{4}$ 0.68).
- In order to assess perceptions of the participants' proximate environment, 5 seven questions were used to measure attitudes towards both physical and social incivility. Participants were asked how much of a problem they felt the following conditions were in the immediate area: (a) vandalism/graffiti; (b) rubbish in the streets; (c) dogs out of control/creating a mess; (d) drug-taking in the open; (e) drinking in the street; (f) teenagers hanging around; and (g) not enough things for young people to do. On average, study participants rated the areas around them 2.49 out of 4.00 (SD $\frac{1}{4}$ 0.52), where 1 indicates incivilities are “Not a problem at all” and 4 indicates that they are “A very big problem”. Seven questions were also used to measure informal social control and social capital (i.e., social cohesion). Participants were asked how much they agreed with the following statements: (a) the people who live here can be relied upon to call the police if someone is acting suspiciously; (b) if any of the children or young people around here are causing trouble, local people will tell them