



The geography of crime fear: A pilot study exploring event-based perceptions of risk using mobile technology

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ABSTRACT

The current pilot study explores whether mobile technology can be leveraged in survey research to gather meaningful context-dependent data on fear of crime and risk perception formation. A series of Ecological Momentary Assessments (EMAs) were administered to students enrolled at an Australian University ($N = 20$), using a smartphone application. Analysis of data collected from participants in their everyday activity spaces a) show strong internal consistency among multiple measures of crime fear; b) indicate that perceptual measures of social cohesion are significant predictors of victimisation worry; and c) support most hypothesised associations between concepts contained in contemporary models of crime fear. Unfortunately, some aspects of the pilot study design could not be implemented as planned, which have implications for future research. Specifically, we found that triggering participant's surveys based on their location (rather than time), produced data that was not conducive to robust place-based analysis. In spite of this limitation, we offer alternative means of measuring the effects of place on fear of crime using mobile devices.

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1. Introduction

Public perceptions of crime have an important influence on policy decisions in relation to community safety and the operational activity of law enforcement. Place-based information collected from residents about their perceptions of crime may provide critical information about the state of crime fear within communities, and provide opportunities for managing it more effectively and efficiently. However, most fear of crime research fails to consider the impact that “place” has on fear of crime. Despite recent advancements in geographic technologies, there has been little in the way of methodological improvements to the way we measure fear of crime amongst individuals within their natural environment.

The purpose of this pilot study is to examine whether mobile technology can be leveraged in survey research to gather meaningful context-dependent data on fear of crime and risk perception formation. With exception of recent work by Solymosi, Bowers, and Fujiyama (2015), no known research has examined this important

question. We argue that using mobile technology as a tool to collect information about context-dependent perceptions of crime requires a greater recognition of the complexity of fear of crime and its measurement as a social-psychological construct. Furthermore, we argue that a more thorough conceptualisation of “place”—and what it means with respect to an individual's fear of crime—is long overdue. Finally, we conclude that future work utilising mobile technology to test fear of crime should consider it as a dynamic emotional response to crime and disorder grounded in the everyday experiences of individuals within their proximate environment.

2. Review of literature

2.1. The geography of crime fear

The physical landscape and social geography of “places” affect perceptions of crime, which has been documented in the literature at varying scales. In terms of the physical landscape, macro-level sociological theories have long argued that neighbourhood structural factors can disrupt a community's ability to self-regulate, which in turn causes crime and delinquency (Park & Burgess, 1925; Shaw & McKay, 1942). Existing contemporary research also

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shows that perceptions of neighbourhood disorder and physical decay influence perceptions of crime (Brunton-Smith & Sturgis, 2011). Moreover, extant literature suggests that adverse perceptions of crime can cluster within socially disorganised neighbourhoods, similar to the way that crime patterns form hot spots (Wyant, 2008).

At the micro-level, criminology-of-place scholars argue that crime concentrates and endures in relatively smaller units of geography, including street segments (Weisburd, Benasco, & Bruinsma, 2009; Weisburd & Eck, 2004). Furthermore, these scholars purport that the environmental backcloth is supportive of victim and offending behaviour within these small geographic “places” (Brantingham & Brantingham, 1999), and that the physical characteristics of the environmental backcloth can influence attitudes towards crime, as well as individual responses to it (i.e., constrained behaviours) (Pain, 2000; Warr, 1990).

In terms of social geography, existing research demonstrates a strong correlation between the social meaning of “places” and attitudes towards them, including attitudes towards crime. Research within this field has linked fear of crime, for example, to how people view their quality of life and the urban environment in which they live (Pacione, 2003). This perspective reflects a more humanistic interpretation of place (Tuan, 1977), where “spaces become ‘places’ as they become imbued with meaning through lived experiences” (Stedman, 2003, p. 672). This means that we must better understand the way in which individuals interact with their proximate environment if we are to better understand how their attitudes, such as fear of crime, are affected by it.

With few exceptions (e.g., Solymosi et al., 2015), most studies largely ignore the interaction between people and their proximate environment and how this interaction affects perceptions of crime. This deficiency in the existing empirical scholarship may not be a result of disinterest, but rather shortcomings in the traditional methods used to study fear of crime and the common measures used to assess it. Without new methodological approaches to studying—and innovative ways of measuring—this important social issue, our ability to disentangle the role “place” plays in risk perception formation will be stymied.

2.2. Measures and methods in fear of crime research

Scholars have debated the validity and reliability of traditional measures of fear of crime for many years, especially perceptions of safety questions such as, “How afraid are you of walking alone in your neighbourhood at night” (Farrall, Bannister, Ditton, & Gilchrist, 1997; Jackson, 2005). Results from various national surveys indicate that when asked about perceptions of safety at night in an area, individuals tend to indicate that they are somewhat fearful, with most fearful respondents being women and the elderly (e.g., ABS, 2010). However, scholars have argued that perceptions of safety questions such as these are simply too narrow for measuring complex processes that may be associated with fear of crime, as they tend to disregard physiological and emotional responses to criminal events (Hale, 1996; Jackson, 2005). Additional criticisms of traditional measures of crime fear are that they a) ignore the frequency with which respondents feel fearful of crime; b) fail to identify whether fear varies over time; and c) ignore important features related to risk perception formation such as perceptions of control and consequences of victimisation (Killias, 1990).

In response, more valid and reliable indicators of victimisation worry have been developed. These alternative measures are framed in reference to existing research on risk perception formation (Ferraro, 1995; Killias, 1990) and social-psychological theories of fear, evaluating the *physical* and *social* environment, general *beliefs* about the frequency with which crime occurs, whether an

individual can *control* becoming a victim of crime, and the perceived *consequences* of victimisation if it were to occur (Jackson, 2004). Furthermore, tests of these alternative indicators of crime fear in robust social-psychological models of victimisation worry (e.g., Jackson, 2004, 2005, 2009; Chataway & Hart, 2016) show that they are valid and reliable measures of this complex, multi-dimensional concept (see Fig. 1).

Although this alternative conceptualisation of crime fear has been validated in many countries, it is yet to be tested with emerging technologies that are designed to gauge fear of crime in real-time/place. Specifically, it is unknown whether the quality of contemporary indicators of victimisation worry can be retained if they are derived from methods other than traditional paper-pencil surveys; and perhaps more importantly, whether alternative methods for collecting these measures can further our empirical understanding of the impact that place has on perceptions of crime, disorder, and victimisation risk.

2.3. Fear of crime research methods

Most of our empirical knowledge about individual's fear of crime is derived from survey research. Unfortunately, paper-pencil surveys tend to produce data that lack ecologically valid information that is needed to assess fear of crime within a person's natural environment¹ (Gray, Jackson, & Farrall, 2011; Pain, 2001). It is not clear, for example, whether individuals' reactions to crime within the environment are stable across time and different “places”, when paper-pencil methods are used (Solymosi et al., 2015). Likewise, most models designed to explain the processes behind crime fear and risk perception formation are tested using cross-sectional survey data—limiting conclusions that can be drawn about the stability of crime fear over time and different places (Jackson, 2005).

One possible way to resolve this issue is to measure fear of crime by conducting Ecological Momentary Assessments (EMAs) (Csikszentmihalyi & Larson, 1992). In the health, medical, and psychological sciences, EMAs are often administered as a Short Message Service (SMS) (i.e., text messages) that are sent to study participants' mobile devices' and designed to illicit feedback/responses while participants are in their natural settings (Raento et al., 2009). Alternatively, EMAs can be delivered to study participants as part of a mobile application. Several commercial applications exist that support EMA research, which are designed to test social behaviour using temporal and spatial sensors already built into smartphones. Because EMAs gather data from individuals while in their natural settings, they are capable of producing data with greater ecological validity, compared to retrospective paper-pencil surveys (Brewer, 2000; Moore, Elkins, McNulty, Kivisto, & Handsel, 2011).

EMA participation and completion rates tend to be relatively high, often ranging between 70% and 90%. These high rates of completion may be due, in part, to EMAs being relatively quick and easy to complete with mobile technology, which can also help reduce respondent fatigue and reactivity effects (Collins, Kashdan, & Gollnisch, 2003; Muessig et al., 2013). Empirical evidence also suggests that measures of concepts delivered through momentary assessments have strong concurrent and construct validity (Serre et al., 2012).

Despite the benefits of EMAs, some evidence suggests that self-selection bias may occur during participant recruitment and when

¹ Here “ecological validity” refers to the extent to which results from surveys can be generalised to everyday life and social actions (Shiffman, Stone, & Hufford, 2007).

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