Social Science & Medicine 168 (2016) 30–34

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Short communication

Does heightened fear of crime lead to poorer mental health in new suburbs, or vice versa?

Sarah Foster [a, *], Paula Hooper [a], Matthew Knuiman [b], Billie Giles-Corti [c]

[a] Centre for the Built Environment and Health, School of Sport Science, Exercise & Health and School of Earth & Environment, The University of Western Australia (M707), 35 Stirling Highway, Crawley, WA 6009, Australia
[b] School of Population Health, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia
[c] McCaughey VicHealth Community Wellbeing Unit, Centre for Health Equity, Melbourne School of Population and Global Health, University of Melbourne, Australia

ARTICLE INFO

Article history:
Received 13 June 2016
Received in revised form
12 August 2016
Accepted 6 September 2016
Available online 8 September 2016

Keywords:
Fear of crime
Psychological distress
Longitudinal
Walking
Social cohesion
Suburban
Adults

ABSTRACT

Fear of crime is implicated as a risk factor for poorer mental health, yet few studies have explored whether there is a causal relationship between fear of crime and health, or tested the direction of the relationship. Does, for example, heightened fear of crime lead to poorer mental health, or could poorer mental health exacerbate fear of crime? RESIDE participants in Perth, Australia, completed a questionnaire three years after moving to their neighbourhood (2007–2008, n = 1230), and again four years later (2011–2012, n = 531). The impact of fear of crime on psychological distress (Kessler-6) was examined in SAS using the Proc Mixed procedure (marginal repeated measures model with unrestricted variance pattern). Models controlled for demographics and time, and progressively adjusted for avoidance behaviours (i.e., walking, community participation, social cohesion). This approach was repeated with psychological distress as the independent variable and fear of crime as the outcome. For each increase in one standard deviation (SD) in fear of crime, psychological distress increased by 0.680 ($p = 0.0001$), however in the reversed models, for each one SD increase in psychological distress, fear of crime increased by 0.152 ($p = 0.0001$). To help explain these results, temporal order models examined whether baseline values predicted follow-up values. There was a significant association between psychological distress (at baseline) and fear of crime (at follow-up), but no association between fear of crime (at baseline) and psychological distress (at follow-up). The findings suggest a bi-directional relationship exists between fear of crime and mental health, however it appears that higher psychological distress over time leads to higher fear of crime, rather than the reverse. Furthermore, the pathway connecting fear of crime and mental health appears to be direct, rather than via constrained social and physical activities.

1. Background

Crime and fear of crime are intertwined with health. Studies identify somewhat consistent associations between higher levels of fear of crime and poorer general health (Ross, 1993; Chandola, 2001), mental health (Whitley and Prince, 2005; Green et al., 2002; Roberts et al., 2012), physical functioning and quality of life (Stafford, 2007). However, the theoretical pathways that link fear of crime and health, and the direction of this relationship, are not well understood (Lorenc et al., 2012). Does heightened fear of crime lead to poorer health, could poorer health exacerbate fear of crime, or could both apply?

Direct and indirect pathways connect fear of crime and health. Fear of crime may impact health directly, via increased anxiety and stress, and the reverse may also apply, with poorer health increasing perceived vulnerability and intensifying fear of crime (Whitley and Prince, 2005; Lorenc et al., 2012). Fear of crime may also affect health indirectly via avoidance behaviours, whereby people constrain their social and physical activities (Liska et al., 1988). This withdrawal may affect the formation of social ties (Ross and Jang, 2000), social participation (Stafford, 2007) and physical activity levels (Foster et al., 2014a, 2014b; Foster and Giles-

* Corresponding author.
E-mail addresses: sarah.foster@uwa.edu.au (S. Foster), Paula.hooper@uwa.edu.au (P. Hooper), Matthew.Knuiman@uwa.edu.au (M. Knuiman), b.giles-corti@unimelb.edu.au (B. Giles-Corti).

http://dx.doi.org/10.1016/j.socscimed.2016.09.004
0277-9536/

Corti, 2008). For example, Stafford (2007) found participants with greater fear of crime had reduced contact with friends, involvement in social activities and participation in vigorous physical activities. They suggested these avoidance behaviours may help explain the relationship between fear of crime and poorer mental health (Stafford, 2007). However, avoidance behaviours may also contribute to the reverse pathway, as those with poorer mental health can withdraw from social networks (Li and Zhang, 2015) and restrict physical activities (Steinmo et al., 2014). Finally, fear of crime may impact health via a cycle of connected ecological processes – individuals withdraw, social cohesion and trust weaken, and the social and physical environment deteriorates, in turn impacting residents' health (Lorenc et al., 2012; Skogan, 1986).

To date, few longitudinal studies have unpacked the relationship between crime, fear of crime and mental health. Stafford (2007) examined associations between fear of crime and mental health and physical functioning in British civil servants using data from the Whitehall II study. Models tested associations between fear of crime and health (at phase 7), controlling for mental health and physical functioning at the previous time-point (phase 6). Participants in the highest fear of crime tertile had significantly higher odds of a common mental disorder, anxiety, and depression, compared with those in the lowest fear of crime tertile (Stafford, 2007). Jackson and Stafford (2009) also used Whitehall II data to explore the opposite pathway, that is, whether fear of crime (at phase 7) was a function of prior health (at phase 5), and found that fear of crime was higher among those with a history of depression, and poorer mental and physical functioning (Jackson and Stafford, 2009). Those in poorer health may perceive themselves as more vulnerable to crime, thus increasing their worry about victimisation (Jackson and Stafford, 2009). However, fear of crime was collected at a single time-point, so neither study was able to examine changes in fear over time.

The most rigorous longitudinal study to date focused on changes in neighbourhood crime, rather than fear of crime, and found that increases in area-level crime were associated with increases in psychological distress for a large sample of Australians (Astell-Burt et al., 2015). However, crime and fear of crime are not necessarily correlated and the links between them are complex (Lorenc et al., 2013; Hale, 1996; Foster et al., 2010). They are usefully understood as distinct 'but related phenomena' (Schneider and Kitchen, 2007). Fear of crime, for example, is influenced by a multitude of individual, social and built environment factors, including perceived vulnerability, previous victimisation, media reports, exposure to strangers, and neighbourhood upkeep, aesthetics and design (Lorenc et al., 2012; Hale, 1996; Foster et al., 2010). Indeed, many more people are afraid of crime than are actually victimised (Hale, 1996), and it has been proposed that fear of crime may embody other, more nebulous anxieties, which are unconsciously 'projected onto a knowable and name-able fear' (Farrall et al., 2009), and may be less about crime *per se*.

Given the lack of longitudinal studies examining fear of crime and mental health, and the mixed evidence on the causal pathway, this study uses longitudinal data to: (1) explore the direction of the relationship between fear of crime and mental health; and (2) test whether the relationship between fear of crime and mental health is direct, or partially explained by individual-level avoidance behaviours (i.e., walking, community participation, perceived social cohesion).

2. Methods

2.1. Study context

The RESIDential Environments (RESIDE) Project is a longitudinal study of people building houses and relocating to 73 new housing developments, spread across 48 suburbs in Perth, Western Australia. All people building homes in the study areas were invited to participate by the state water authority following the land transfer transaction (response rate 33.4%). Participants completed a self-report questionnaire before they moved into their home ($n = 1813$), and on three occasions after relocation at approximately 12 ($n = 1467$), 36 ($n = 1230$) and 84 months ($n = 531$). RESIDE was approved by The University of Western Australia's Human Research Ethics Committee (#RA/4/1/4040) and is described elsewhere (Giles-Corti et al., 2008). The current study draws on participants who completed the fear of crime and psychological distress items in the 36 and 84 month questionnaires (comparable items were only available for these time-points). For this study, we refer to the 36 month time-point as 'baseline' and the 84 month time-point as 'follow-up'.

2.2. Measures

Mental health was measured by the Kessler-6 (K6) which assesses psychological distress. K6 has been validated in Australia, and is widely-used to screen for the presence of serious mental illness (Furukawa et al., 2003). It comprises six items that measure the frequency of experiencing symptoms of general psychological distress such as nervousness, tiredness, hopelessness, and restlessness. Items are summed to produce a score between 0 and 24, and those scoring 13–24 are classified as being at risk of a serious mental illness (Kessler et al., 2002). In this study we used K6 as a continuous measure, as our focus was on the broader relationship between fear of crime and mental health, rather than the diagnoses and treatment of disease.

Fear of crime was derived from the question: In your everyday life, how fearful, or not, are you about the following situations: (1) having someone break into your house while you're at home; (2) being attacked by someone with a weapon; (3) being robbed or mugged on the street; (4) having your property damaged by vandals; and (5) having someone loiter near your home at night (Cronbach's $\alpha = 0.92$) (Ferraro, 1995). Participants rated each item on a Likert scale (1 = not at all fearful to 5 = extremely fearful) which were averaged to produce a score between 1 and 5.

2.3. Adjustment variables

Demographic variables included age, gender, household income, education and marital status. Walking (minutes/week inside the neighbourhood) was measured using the Neighbourhood Physical Activity Questionnaire, which has acceptable reliability (ICC ≥ 0.82), and distinguishes the location and purpose of walking (Giles-Corti et al., 2006). Community participation was the count of activities (e.g., volunteer organisations, fund raising) participants were involved with in their local area during the past year ($n = 12$ activities) (Lindström et al., 2001). Social cohesion was measured using a modified version of the Neighbourhood Cohesion Index, which measures psychological sense of community (Buckner, 1988). Our scale comprised 16 five-point Likert items (1 = strongly disagree to 5 = strongly agree) (Cronbach's $\alpha = 0.93$) and is described elsewhere (French et al., 2014).

2.4. Statistical analysis

Models were fitted in SAS software (version 9.4) using Proc Mixed. We applied a marginal repeated measures model with an unrestricted variance pattern across the two time points that used all available data for each person. The primary models estimated the overall effect of fear of crime (i.e., the combined between-