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prospective cohort study**

**Article (Accepted version)
(Refereed)**

Original citation:

Jackson, Jonathan and Stafford, Mai (2009) Public health and fear of crime: a prospective cohort study. *British journal of criminology*, 49 (6). pp. 832-847.

DOI: [10.1093/bjc/azp033](https://doi.org/10.1093/bjc/azp033)

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Available in LSE Research Online: November 2010

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Title: Public Health and Fear of Crime: A Prospective Cohort Study

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Running Head: Public Health and Fear of Crime

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Word count: 7,189 (including abstract, references, footnotes, funding and acknowledgements)

Public Health and Fear of Crime: A Prospective Cohort Study

Abstract

Public insecurities about crime are widely assumed to erode individual well-being and community cohesion. Yet robust evidence on the link between worry about crime and health is surprisingly scarce. This paper draws on data from a prospective cohort study (the Whitehall II study) to show a strong statistical effect of mental health and physical functioning on worry about crime. Combining with existing evidence, we suggest a feedback model where worry about crime harms health, which in turn serves to heighten worry about crime. We conclude with the idea that, while fear of crime may express a whole set of social and political anxieties, there is a core to worry about crime that is implicated in real cycles of decreased health and perceived vulnerability to victimization. The challenge for future study is to integrate core aspects of the everyday experience of fear of crime with the more layered and expressive features of this complex social phenomenon. [158 words]

Key words: Fear of crime; public health; vulnerability; longitudinal research

INTRODUCTION

The fear of crime remains a topical social and political issue that attracts a wealth of research from a variety of social scientific disciplines. Much of the attention is predicated on the status of the fear of crime as a significant social problem.¹ Research shows that a relatively large minority of citizens of countries across the world worry about becoming a victim of crime. Resulting anxieties are believed to erode quality of life and well-being, restrict movement, motivate costly precautions, encourage ‘flight’ from deprived areas, and harm social trust, inter-group relations and the capacity of communities to exercise social control (Hale, 1996).

Because of the assumed impact, and because of disconnect between ‘fear’ and ‘crime,’ fear of crime is often seen as a social problem *in its own right*. Some argue that public emotions about crime are fed by the sensationalism of mass media coverage of crime (Warr, 2000). Others contend that public attitudes towards crime are rooted in day-to-day concerns about social cohesion and neighbourhood breakdown, leaving fear less an irrational sense of crime and more a compound of broader issues of quality-of-life and social stability (Jackson, 2004, 2006; Farrall *et al.*, 2009). Still others argue that public policy, mass media coverage and criminological research have each contributed to a culture of fear that encourages people to view the world through the lens of crime, security and safety, driving ever-more punitive policy from Government (Lee, 2007, 2001, 1999; Simon, 2007; Zedner, 2003; Furedi, 2006; Bauman, 2002).

Studying the impact of fear of crime on individual and community health is an important endeavour however. By focusing on the consequences of fear we can begin to weigh up the overall impact of public insecurities about crime on society. We can thereby do some basic work on the impact of this social phenomenon on personal well-being. Consider Dolan & Peasgood’s (2007) estimation of the ‘cost’ of fear on public health. First, they capitalised on new measures of episodes of worry about crime (Farrall & Gadd, 2004; Gray *et al.*, 2008a; Farrall *et al.*, 2009). Second, they assumed an association between the intensity of ‘fearful incidents’ and the impact on ‘health-related quality of life.’ For example, when a survey respondent says that they are ‘very worried’ in one particular episode, this was assumed to last a certain amount of time with a typical impact on anxiety/depression. Third, they linked the number and intensity of episodes of worry about crime (and the assumed impact on anxiety/depression) to the ‘quality-adjusted life year (QALY) instrument.’² The resulting calculation allowed them to estimate the direct impact of fear episodes on health loss, and conclude with a monetary value given to fear of crime in England and Wales.³

Yet given the common belief that fear of crime is an unqualified social ill, there is surprisingly little robust data on its impact. In particular, a striking gap in the evidence base regards the effect of fear of crime on health and quality of life. While respondents of the British Crime Survey regularly report that fear of crime reduces their quality of life, such self-reports can only ever be indicative. While other work has found correlations between worry about crime and self-reported physical and psychological health from single-shot surveys (Kruger *et al.*, 2007; Chandola, 2001; Ross, 1993; see also Adams & Serpe, 2000), such self-reports are no substitute for longitudinal studies that utilise objective and self-reported measures of physical and psychological health. Thus viewed, Hale’s (1996) assertion that fear erodes psychological well-being remains suggestive rather than settled.

One exception is a recent longitudinal, prospective cohort study that found a robust effect of worry about crime on reduced health (Stafford *et al.*, 2007). The Whitehall II study tracks 10,308 women and men all of whom were employed in the London offices of the British Civil Service on recruitment to the study in 1985. Examining the impact of worry about crime on

¹ Criminological on the fear of crime has been motivated not only by its social problem status, of course. For example readers of this journal will also be all-too-familiar with the plea that we need better conceptual and methodological tools to more fully appreciate the complex and contested nature of public thoughts and feelings about crime (Taylor, 1995; Farrall *et al.*, 1997; Hollway & Jefferson, 1997; Loader *et al.*, 1998; Gabriel & Greve, 2003; Farrall & Gadd, 2004; Jackson, 2004; Sutton & Farrall, 2005).

² For a discussion of this instrument, see Gold *et al.* (2002).

³ They also note however that: ‘...if the fear of crime is a pervasive emotional response to a chronic state, then focusing on specific occurrences of immediate feelings of fear will mean that these figures understate the direct health impact of fear of crime’ (Dolan & Peasgood, 2007: 128).

physical and psychological health, Stafford *et al.* (2007) found that fear of crime at baseline was prospectively associated with poorer mental health, with reduced physical functioning on objective and subjective indicators, and with a lower quality of life. Participants reporting greater worry were just over 1.5 times as likely to have a common mental disorder, and just under 2 times as likely to have depression, compared to those reporting low fear of crime. They exercised less, saw friends less often, they participated in fewer social activities. To some extent the curbing of physical and social activities (cf. Liska *et al.*, 1988; Foster & Giles-Corti, 2008; Taylor *et al.*, 2009) helped explain the link between worry about crime and health.⁴ Worry about crime thus seems not just an affective response and a generalised anxiety, but also something that is associated with impaired physical and mental health functioning.

This paper builds upon the longitudinal investigation of public health and worry about crime. As Dolan & Peasgood (2007: 125-126) argue:

‘The relationship between anticipating crime and health is complex, not least because the direction of causality is not clear. Those suffering from poor mental health may be more fearful of crime because they are more fearful generally. And those with poor physical health, particularly limited mobility, hearing and eyesight problems, may feel more unsafe and vulnerable both in the home and outside it, especially at night. Consequently, it is necessary to interpret evidence of an association between fear of crime and health with caution.’

As just outlined, there is existing evidence that worry about crime may reduce health. But might poor health in turn increase worry about crime? In order to test a feedback model of fear of crime and public health, this paper calls on further data from the Whitehall II study to assess whether health has a feedback effect back onto worry about crime. Demonstration of an impact of health on worry about crime – in combination with previous evidence indicating that fear of crime is detrimental to health – suggests a recursive model of fear and health. Poor mental and physical health may elevate public anxieties about crime, but anxieties about crime may in turn only serve to harm health further. By way of contribution, the paper also suggests a few pathways by which health and anticipating crime might inter-relate.

The effect of health on fear of crime

Analyses of British Crime Survey data (e.g. Allen, 2004: 44-45) have repeatedly found that self-reported health is associated with worry about crime net of victimization experience, demographics (e.g. gender, age, ethnicity, social class, tenure, household composition, and income) and area-level variables (e.g. deprivation and crime levels). Self-rated health has also been found to be a statistically significant correlate when ‘fear of crime’ is disaggregated into anxiety about crime (where people say they are worried but cannot actually recall a recent moment when they felt under threat) and concrete moments of everyday worry (Farrall *et al.*, 2009).

Why might there be a relationship between health (whether it is physical or mental health) and fear of crime? Figure 1 outlines three possible pathways from health to anticipated crime.

INSERT FIGURE ONE ABOUT HERE

The first pathway states that those with poor health will feel more vulnerable (or susceptible) to the possibility and impact of crime (Killias, 1990). An individual or social group might be said to be vulnerable when they see themselves to be especially susceptible to victimization and when this leads them to express especially frequent everyday worry (Jackson, 2009). In the current context the increased vulnerability of those with poor health is expected to

⁴ In the observational study of Stafford *et al.* (2007) it would be unreasonable to claim that a causal relationship between fear of crime and mental health and physical functioning has been demonstrated. However, adjustment for previous mental health and health functioning was made and so it was reasonable to conclude that the experience of poor health leading to increased fear was not the only driver of the associations seen. Furthermore, objective measures of physical functioning, captured by walking speed and lung function, as well as subjective measures of health, were associated with fear of crime.

lead to more intense and more frequent worries about victimization. Those with poor health will think that they are more likely to be targeted by criminals (perhaps because they are seen as ‘easy victims’), less likely to be able to control the event (perhaps because they are unable to physically defend themselves), and more likely to view the consequences of victimisation to be especially serious (someone in already poor health may suffer an especially serious impact).

The second pathway is through decreased trust and community participation. There is a good deal of evidence that public concerns about neighbourhood disorder, social cohesion and collective efficacy are associated with perceptions of risk and subsequent worry or anxiety (Ferraro, 1995; Perkins & Taylor, 1996; Jackson, 2004; Wyant, 2008). Such work suggests that a sense of security and the risk of crime emerges out of broader public assessments of social stability, moral consensus and the collective informal control processes that underpin neighbourhood order (Bannister, 1993; Girling *et al.*, 2000; Jackson, 2006). There is also some evidence that common mental disorders lead to social withdrawal and reduced social functioning (Paykel *et al.*, 1971; Wells *et al.*, 1989; Johnson *et al.*, 1992; Sherbourne *et al.*, 1994; Hays *et al.*, 1995; Coulehan *et al.*, 1997). These could in turn reduce social trust and increase concerns about neighbourhood disorder and cohesion. The question of whether poor physical health is related to disconnection from community remains however, although it is plausible that physical limitations can reduce a person’s ability to participate in certain social and community activities, and ill-health and disability may limit social participation in several ways (Locker, 1983; Cardol *et al.*, 2002). Recent evidence on the impact of illness on social activities is mixed, being significant for women but not men (Platt, 2006). Longitudinal studies are needed to elucidate the impact of chronic physical illness on community participation and trust.

The third and final pathway from health to fear is through general fear, worry or anxiety. A recent study found a small but not insignificant statistical effect of general state and trait anxiety (using the Spielberger, 1983, State-Trait Anxiety Inventory) on fear (Chadee *et al.*, 2008). This is consistent with Calvo & Eysenck’s (2000) finding that trait anxiety heightened vigilance for danger processing (see also Beck & Clarke, 1997). Focusing on worry, Hough (1995) found that people who worried about crime also tended to worry about other life events and problems (cf. Dammert & Malone, 2003). An alternative way of looking at this is that people may displace their fears of other things onto their fear of ‘crime’ (Hollway & Jefferson, 1997), and as mentioned above, anxieties about social cohesion and moral consensus may get channeled through concerns about deviance, crime and policing. However, the link between health and generalized fear, worry and anxiety certainly requires careful attention. Common mental disorders (especially anxiety disorders) clearly have considerable overlap with the mediating pathway and whether they can be defined as separate concepts is questionable; indeed there may not be separate concepts of generalized fear and anxiety.

Goals of the study

As just outlined, there is empirical evidence to support each of the individual steps in our theoretical model summarized in Figure 1. Yet empirical analysis of this model in its entirety has not been attempted. Moreover, the effect of poor health on fear of crime has only been investigated using cross-sectional data and non-specific measures of health. The contribution of this paper is to examine the basic association between worry about crime and mental health and physical functioning health indicators. We marshal longitudinal data to examine the prospective association between health at baseline and subsequent worry about crime. We examine only the relationship between health and fear, but we finish the paper with some suggestions for future research on the mediating pathways.

Method

The Whitehall II study

Data come from the first seven phases of the Whitehall II study. This is a longitudinal study of 10,308 London-based civil servants aged 35-55 years at baseline. The focus in this paper is on data from the fifth and seventh phases. At phase 5 (1997-1999) 7,830 participants completed a questionnaire covering socio-demographic characteristics and health status. At phase 7 (2002-2004) a further questionnaire and screening was completed which included the same health

measures as well as a measure of fear of crime. Additionally, data from phases 1, 2 and 3 were used to assess depressive symptoms and long-term depression status. Approval for the study was granted by the University College London ethics committee and all participants consented to the study.

Fear of crime

Fear of crime can be divided as a range of feelings, thoughts and behaviours, all directed towards the personal risk of criminal victimisation. In this paper we focus on feelings towards the risk of victimisation, and worry in particular. Participants were asked how worried they are about the following events in their neighbourhood: home being broken into; being mugged or robbed; car being stolen or things being stolen from the car; and being raped. Possible responses to each item were very worried (score 3)/ fairly worried (2)/ not very worried (1)/ not worried at all (0) and these were summed to create a fear of crime scale ranging from 0 to 12 (Cronbach's alpha 0.77). We acknowledge that answers to these questions may most often represent anxiety about victimisation rather than concrete emotional events (Hough, 1995, 2004; Farrall *et al.*, 2009). We return, in the closing of this paper, to issues in the measurement of the fear of crime.

Health measures

The depression subscale (Griffin *et al.*, 2002) of the 30-item General Health Questionnaire (Goldberg & Williams, 1985) captured total number of depressive symptoms (Cronbach's alpha 0.86). Depression items were as follows: "Have you recently: 1) been thinking of yourself as a worthless person; 2) felt that life is entirely hopeless; 3) felt that life isn't worth living; 4) found at times you couldn't do anything because your nerves were too bad?" Possible responses were "not at all", "no more than usual", "rather more than usual" and "much more than usual" (scored from 0 to 3 respectively). A cut-off score of 4 out of 12 identified possible cases of depression at each wave. Data from up to four waves were utilised to capture persistent depression as the number of occasions the threshold was reached, ranging from 0 (indicating participant did not reach threshold for depression on any occasion) to 4.

Mental and physical health functioning were measured by the SF-36 Mental and Physical Component Summary scores (MCS and PCS respectively). Summary scores are created from the original 8 scales of the SF-36 (capturing physical functioning, social functioning, role limitations due to physical illness, role limitations due to emotional well-being, vitality, bodily pain, general mental health and general health perceptions) by transforming each to a z-score, multiplying the z-scores by subscale factor score coefficients and summing over the 8 subscales. The summary component scores are then normalised to the US general population and range from 0 to 100 (Ware & Kosinski, 2001). Lower scores represent greater functional limitation. Participants also reported whether they had any long-term illness (anything that had troubled them over a period of time or was likely to affect them over a period of time) and responses were treated as a dichotomous variable.

Current or most recent civil service employment grade was hierarchically ranked from high to low and used as an indicator of socioeconomic position. Grade of employment was determined by asking all participants for their civil service grade title. On the basis of salary the civil service identified 12 non-industrial grades that, in order of decreasing salary, comprise seven "unified grades", senior executive officer, higher executive officer, executive officer, clerical officer, and clerical assistant. Other professional and technical staff were assigned to these grades on the basis of salary. For analysis, three groups were created by combining: unified grades 1–7 (highest grades); executive officers (middle grades); clerical officers and assistants (lowest grades).

Statistical methods

Mental and physical component summary scores were split into quintiles (five groups based on equal numbers of participants) for presentation. Linear regression was used to predict fear of crime at phase 7 as a function of health at phase 5 firstly using separate models for each health measure and then including all health measures simultaneously. The health measures were included as continuous covariates in the regression models. For presentation in the tables, mean fear of crime

by categories of health status was estimated after adjusting for participant's age, gender and employment grade using the least square means approach. These are the means that have been corrected for imbalances in other variables in the model. To reduce the possibility of confounding by reporting style, or negative affect, we additionally adjusted for depressive symptoms at phase 7.

Results

The study sample is summarized in Table 1. In unadjusted analysis, fear of crime was found to be higher for women and those in lower employment grades compared with men and those in higher grades. Fear of crime was higher for those who had been depressed at a previous wave and for those who reported having a longstanding illness.

INSERT TABLE ONE ABOUT HERE

Table 2 summarises the adjusted associations between health at Phase 5 and subsequent fear of crime. These analyses represent the association between health and fear taking out the possible confounding effects of age, gender, socioeconomic status and concurrent depressive symptoms. The adjusted means show a steadily increasing mean fear of crime with increasing persistence of depression, decreasing physical health functioning and decreasing mental health functioning. Having a long-term illness was also associated with reporting greater fear of crime. These results are confirmed using linear regression analysis to quantify the relationship between fear of crime and each health domain. For each increase in number of occasions depressed, the mean fear of crime rose by 0.55. In other words, participants who were depressed at 1 previous wave of the study had a fear of crime score which was 0.55 points higher than those who had not been depressed at any prior wave. Participants who were depressed at 2 previous waves had a fear of crime score which was 1.10 (calculated as 0.55×2) points higher. Fear of crime increased by 0.03 points for each 1 unit increase in mental component summary score. This translates to a difference of 0.54 points (calculated as $0.03 \times 9 \times 2$) for participants who are 1 standard deviation below the mean level of mental functioning compared with those who are 1 standard deviation above mean mental functioning (noting that the standard deviation for MCS is 9.0, see Table 1).

INSERT TABLE TWO ABOUT HERE

Next we turn to the question of which specific aspects of health matter most for generating fear. Table 3 shows mean levels of fear at each level of health, controlling for the age, gender, socioeconomic status and other health domains of the participant. The first point to notice is that the linear coefficient for number of occasions depressed is substantially lower in this Table compared with Table 2. In other words, the association between depression and fear of crime is reduced when we take account of participant's mental and physical health functioning. This is not surprising as the mental component summary score captures the impact of mental health (or lack of mental health) on a person's daily activities. Nevertheless, occasions depressed and mental and physical component summary scores contributed independently to subsequent fear of crime (illustrated by the statistically significant p-values for these variables). For example, mean fear of crime was 2.67 for participants with the highest mental component summary scores compared to 3.41 for those with the lowest scores, adjusting for physical functioning, long-term illness and persistent depression as well as for concurrent depressive symptoms. This corresponds to an effect size of 0.37. Participants with the lowest physical component summary scores (i.e. those with the most limited physical functioning) experienced the greatest fear of crime (mean 3.49), closely followed by those with the lowest mental component summary scores (mean fear of crime 3.41). Only the long-term illness indicator was not independently associated with fear of crime once depression and health functioning were accounted for. In other words, people with long-term depressive symptoms, poorer physical functioning or poorer mental functioning are more likely to report subsequent fear of crime. Poor mental or physical health at time 1 predicts heightened fear of crime at time 2. Considering only participants who were not above the threshold for possible depression did not materially alter these results.

INSERT TABLE THREE ABOUT HERE

Discussion

These results provide support for the hypothesis that poor health leads to increased worry about crime. Because the findings are based on longitudinal analysis of health indicators measured up to five years before indicators of worry, the temporal sequence of poor health preceding worry is established – at least amongst our sample of individuals aged 44 and above. The possibility for reporting style to bias the results was reduced by statistical adjustment for depressive symptoms concurrent with the worry about crime measure. In addition, both mental and physical health appear to contribute independently to greater worry. This supports the idea that physical frailty can increase worry about crime and also highlights heightened worry as one burden of common mental disorder.

Limitations

Before discussing the findings in more detail, some limitations of the study should be recognised. First, it would have been preferable to have measures of worry about crime at an earlier phase and to link new onset physical or mental ill health to increasing worry. Worry about crime was measured on only one occasion in the Whitehall II study. We cannot discount the possibility that our findings are explained by prior worry about crime leading to both prior health and subsequent worry.

Second, there may be a wealth of feelings, thoughts and behaviours about crime and the anticipation of crime (Gray *et al.*, 2008b). People may change the way they behave as a precaution against crime and general lack of comfort in an environment. People may judge the risk through assessments of the likelihood of victimization, feelings of control over the possibility, and perceptions of the potential consequences of victimization (Jackson, 2009; Killias, 1990). People may feel angry, indignant, worried, fearful, even excited about crime or seemingly threatening and unpredictable environments. ‘Crime’ might also expand beyond the obvious (‘the victimization event’) to include symbols associated to risk in one’s environment, and the broader social concerns that are involved in evaluating the extent of neighbourhood stability and breakdown (Ferraro, 1995; Taylor *et al.*, 1996; Girling *et al.*, 2000; Jackson, 2008a).

These complexities have a number of important implications for the measurement of fear of crime. As in the Whitehall II study, surveys in the UK (most prominently the British Crime Survey) typically field general measures of worry about crime: ‘How worried are you about being burgled?’ [Very, fairly, not very, not at all]. Yet recent work has shown considerable complexity underlying these general reports. On the one hand, worry about crime might usefully be subdivided into everyday worry (those mental events which can be recalled and counted, which result from feeling threatened or ruminating about future dangers) and a more diffuse social attitude and anxiety (Farrall *et al.*, 2009). Among those who live in high crime areas, who have had extensive direct or indirect experience of victimisation – and who are especially concerned about local neighbourhood breakdown and normative instability – ‘fear’ spikes up into those rare moments of everyday worry over one’s personal safety and the security of one’s property. But for people who live in more protected areas – who have had less experience of crime, who are less concerned about local incivilities and neighbourhood stability – ‘fear’ is best displayed as a diffuse anxiety and a background awareness of risk and possibility.

On the other hand, another recent study found that around one-quarter of respondents who said they were worried about crime also (a) took precautions, (b) felt safer as a result of these precautions, where (c) their worry and routine activity did not reduce the quality of their lives (Jackson & Gray, 2009). This suggests that a significant proportion of the ‘fear of crime’ that is picked up by general population surveys should be interpreted as ‘functional fear,’ where some amount of worry partly motivated healthy precaution. For some people, therefore, fear of crime may represent a natural defence against crime rather than something that is damaging to their life and well-being.

The current study only used measures of the intensity of worry about crime. We do not know whether poor health is more strongly linked to everyday worry than anxiety about crime. This differentiation is only achieved by measuring worry about crime using both intensity and

frequency questions. We also cannot differentiate between a worry about crime that is harmful and a worry about crime that is helpful. In the current context, it may be that poor health would have been more strongly linked to dysfunctional fear than functional fear. But the Whitehall II study did not field the follow-up probes that allows one to disentangle worry about crime in the ways just described. We acknowledge therefore that patterns could change if we were able to decompose ‘fear’ in these ways. This is something for future study.

The third limitation to our study regards the ways in which feelings of safety and perceptions of risk are embedded in how people make sense of their physical and social environment. There is also evidence that public perceptions of neighbourhood disorder and urban alienation (more broadly) have a negative impact on health and well-being (e.g. Ross & Mirowsky, 2001). This combines with evidence that fear of crime emerges out of public concerns about disorder, social trust and cohesion. Future work might measure these aspects and disentangle them from fear of crime. Studies might thus address the possibly separate effects of fear of crime and neighbourhood quality on health and well-being.

A final limitation – but yet another opportunity for future research – is that the current study did not address the pathways by which health influences fear. Future work might measure the intervening mechanisms that underpin vulnerability, for example, thus assessing whether poor health increases the sense that victimization is likely, uncontrollable and highly consequential (cf. Killias, 1990; Jackson, in press), with a knock-on impact on heightened worry about crime. It may be heightened perceptions of risk interact to increase ‘sensitivity to risk’: when individuals perceive crime to be especially serious in its personal impact, and when individuals perceive that they have little personal control over the victimization event occurring, a lower level of perceived likelihood is needed to raise the frequency of worry (Warr, 1987; Jackson, 2008b).

Conclusions: Towards a feedback model of health, well-being and the fear of crime

The findings of this study build on recent evidence that fear of crime at baseline harms public health at a later period (Stafford *et al.*, 2007). If fear harms health, and if health in turn heightens fear, a feedback model emerges – and worry about crime is implicated in a cycle of decreased health, increased vulnerability, and further insecurities about crime.

Figure 2 sketches out the potential pathways by which health might influence worry about crime, and in turn how worry about crime might influence health. We have already outlined the three pathways between health and worry. As a final contribution, we now discuss three possible pathways from worry back to health:

1. directly;
2. by reducing physical activity, which then decreases mental and physical health; and,
3. by reducing social ties and trust, which then decreases mental and physical health.

INSERT FIGURE TWO ABOUT HERE

The direct effect is proposed to occur when concrete experiences of anxiety, worry or fear (about anticipated crime and feeling personally threatened) induces stress that has a measurable impact on mental and physical health. Here we conceive ‘fear’ as a stressor with direct physiological and behavioural consequences for health, whether through perceived or actual threat increasing the vulnerability to pathogens (Wright *et al.*, 1998; Marsland *et al.*, 2002), or stimulating repeated physiological response producing wear and tear on the nervous and immune systems (McEwen, 2007).

What about the mediating pathways? One behavioural aspect of fear of crime is avoidance. Restricting how much individuals leave the home and the places they visit reduces opportunities to form social ties and participate in social activities. Also lowering the propensity to form social ties might be the mistrust in others that results from fear of crime. Social ties and social activities are protective for physical and mental health and functioning (Sundquist *et al.*, 2004; Ramsay *et al.*, 2008). Fear of crime may also lead to restrictions in outdoor activities, including walking and cycling, and to increased car use, meaning that those who fear crime may

therefore be less physically active, a lifestyle which increases the risk of cardiovascular disease, poor mental health and poorer physical and cognitive functioning.

Final words

This paper found a robust association using longitudinal data and measures of mental and physical health that links poor health onto heightened worry about crime. In combination with previous findings we propose a feedback model where there is a core to worry about crime that harms health, which in turn maintains or elevates levels of emotional response to crime (Figure 2). We have argued that the evidence marshaled from the Whitehall II study highlights a real significance of fear of crime on well-being. While it is important to address the social perception that drives sensibilities about crime, we believe that it would be quite wrong to consign fear of crime to being just another ‘discourse’, just another way of displacing anxieties, just another way of talking about ‘broken Britain’ (even an elite conspiracy to ‘keep the working man down’). Such strong social constructionism suggests a naivety over the reality of some public concerns. Our data combines with previous evidence to suggest that there is a core to the ‘fear of crime’ – indeed a core that may overlap with the ‘everyday worry about crime’ that Farrall and colleagues have identified (see Farrall *et al.*, 2009) and the ‘dysfunctional fear’ of Jackson & Gray (2009). This core exhibits in real cycles of vulnerability and public health. The challenge for future empirical enquiry is to integrate into one framework experiential aspects of the fear of crime alongside the layered and nuanced expressive features of this complex social phenomenon.

Funding

The Whitehall II study has been supported by grants from the Medical Research Council; the British Heart Foundation; the Health and Safety Executive; the Department of Health; the US National Heart, Lung, and Blood Institute (grant HL36310); the US National Institute on Aging; the Agency for Health Care Policy and Research (grant HS06516); and the John D. and Catherine T. MacArthur Foundation Research Networks on Successful Midlife Development and Socioeconomic Status and Health.

Acknowledgements

The authors thank all participating civil service departments and their welfare, personnel, and establishment officers; the Occupational Health and Safety Agency; the Council of Civil Service Unions; and all members of the Whitehall II study team.

Thanks also to Jouni Kuha and the Social Statistics Section of the Royal Statistical Society for organising and hosting an event on fear of crime research in March 2008.

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Table 1. Characteristics of 3,498 Whitehall II study participants at Phase 5 (1997-1999) who completed fear of crime questionnaire at Phase 7 (2002-2004)

	Percent of sample	Mean (s.d.) fear of crime
Male	70	2.60 (0.40)
Female	30	3.72 (0.07)
Age		
<=49	8	2.84 (0.12)
50-54	19	2.74 (0.07)
55-59	23	2.87 (0.07)
60-64	36	3.10 (0.06)
65-69	14	2.90 (0.09)
Employment grade		
Low	45	2.59 (0.04)
Medium	44	3.02 (0.05)
High	12	3.97 (0.13)
Number of occasions depressed		
0	71	2.73 (0.04)
1	16	3.27 (0.09)
2	7	3.52 (0.15)
3-4	6	3.79 (0.15)
Longstanding illness		
Longstanding illness	53	3.12 (0.5)
No longstanding illness	47	2.74 (0.05)
Mental health functioning (SF36 MCS)		
mean (10 th centile, 90 th centile)		
Physical health functioning (SF36 PCS)	52.4 (9.0)	
	50.3 (8.4)	

Table 2. Association between health status at Phase 5 (1997-1999) and fear of crime at Phase 7 (2002-2004) adjusted for age, gender, employment grade and Phase 7 depression

Phase 5 health status	Adjusted mean (s.e.) fear of crime	β coefficient (s.e.) for linear effect	p-value for linear effect
Number of occasions depressed ^a		0.55 (0.11) per 1 occasion increase	<0.001
0	2.81 (0.05)		
1	3.24 (0.09)		
2	3.47 (0.13)		
3 or 4	3.43 (0.15)		
Mental component summary score		0.03 (0.004) per 1 unit increase	<0.001
Quintile 1 (best functioning)	2.67 (0.08)		
Q2	2.73 (0.08)		
Q3	2.92 (0.09)		
Q4	3.11 (0.09)		
Q5 (poorest functioning)	3.41 (0.10)		
Physical component summary scores		0.02 (0.005) per 1 unit increase	<0.001
Quintile 1 (best functioning)	2.83 (0.09)		
Q2	2.87 (0.09)		
Q3	2.78 (0.09)		
Q4	3.03 (0.08)		
Q5 (poorest functioning)	3.21 (0.08)		
Long-term illness		0.18 (0.07)	0.01
No (reference group)	2.87 (0.06)		
Yes	3.05 (0.06)		

^aBased on score of 4 or more out of 12 on the General Health Questionnaire depression subscale

Table 3. Combined effects of mental and physical health at Phase 5 (1997-1999) on fear of crime at Phase 7 (2002-2004) adjusted for age, gender, employment grade and Phase 7 depression

Phase 5 health status	All participants			Participants not depressed at Phase 7 p for linear association		
	Adjusted mean (s.e.) fear of crime	β coefficient (s.e.) for linear effect	p for linear association	Adjusted mean (s.e.) fear of crime	β coefficient (s.e.) for linear effect	p for linear association
Number of occasions depressed		0.14 (0.04)	p<0.001		0.19 (0.05)	p<0.001
0	2.85 (0.07)			2.71 (0.06)		
1	3.18 (0.09)			3.03 (0.10)		
2	3.30 (0.14)			3.22 (0.17)		
3 or 4	3.23 (0.16)			3.24 (0.21)		
Mental component summary scores		0.03 (0.005)	p<0.001		0.02 (0.005)	p<0.001
Quintile 1 (best functioning)	2.67 (0.08)			2.80 (0.11)		
Q2	2.73 (0.08)			2.87 (0.11)		
Q3	2.92 (0.09)			3.03 (0.11)		
Q4	3.11 (0.09)			3.24 (0.12)		
Q5 (poorest functioning)	3.41 (0.10)			3.32 (0.12)		
Physical component summary scores		0.02 (0.004)	p<0.001		0.02 (0.005)	p<0.01
Quintile 1 (best functioning)	2.88 (0.10)			2.86 (0.11)		
Q2	2.94 (0.10)			3.00 (0.11)		
Q3	3.11 (0.10)			2.95 (0.11)		
Q4	3.26 (0.11)			3.15 (0.11)		
Q5 (poorest functioning)	3.49 (0.10)			3.29 (0.11)		
Long-term illness		0.02 (0.005)	p=0.7		0.03 (0.08)	p=0.7
Yes	3.15 (0.08)			3.06 (0.09)		
No	3.13 (0.08)			3.04 (0.09)		

Figure 1: Public health and the fear of crime

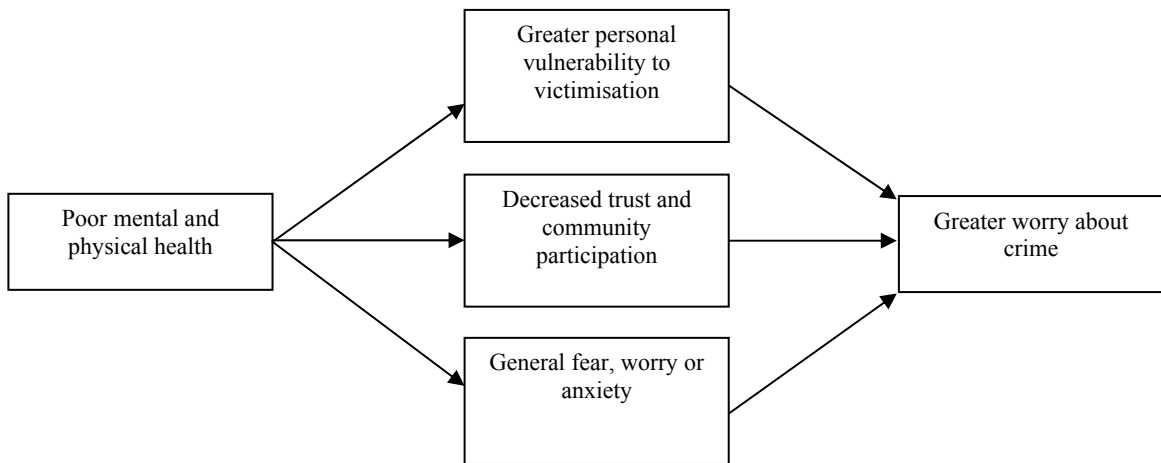


Figure 2: A feedback model of fear of crime and public health

