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Crime, fear of crime (CFOC) and mental health: evidence synthesis of theory and effectiveness of interventions.

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1. *Aims/Objectives*

Rationale for current study

Despite a plethora of interventions to tackle crime and fear of crime at the community and neighbourhood level in the UK, their effectiveness remains unclear in terms of what works and for whom in improving mental health and wellbeing. A synthesis of the evidence is long overdue. Such a synthesis, however, needs to encompass not only the effectiveness of what has been tried, but also the theoretical frameworks for understanding what might be tried at different entry points in the pathways between crime and mental health. This will provide a platform to allow policymakers and practitioners to make better-informed choices about how and where to intervene through, for example, local government and civil society. Potential actions range from good environmental design and regulatory controls (such as controls on the number of alcohol outlets), as recommended by the Commission on Social Determinants of Health (CSDH, 2008, rec. 6.3), to interventions that act on the mediating psychological processes that lead to fear and social isolation. The evidence synthesis we propose will also identify evidence gaps to steer future research and development – for example by providing a framework for designing future interventions (and evaluations of interventions).

Protection from crime is an important determinant of health and wellbeing globally (CSDH, 2008, pp 62-3), but public health researchers in the UK have less frequently examined this issue than researchers in the US. There are innovative experimental studies underway which explore crime in relation to public health, but a wide-ranging review is needed to provide an important impetus and direction to future intervention research. This project therefore aims to review a diverse evidence base. The Campbell Crime and Justice group has carried out important evidence syntheses in this field, though mental health and wellbeing are not generally included as outcomes in its reviews, with the exception of interventions that target drug use (e.g., street-level drug law enforcement). Similarly, there are reviews which address relevant public health issues, such as one exploring the relationships between income inequality and mortality and violent crime (Hsieh & Pugh, 1993) though this is now old, and the findings are not disaggregated by country.

There are also UK evaluations of crime reduction strategies, including those conducted in tandem with area-based initiatives, and others such as the research on the Crime and Disorder Reductions Partnerships (CDRPs). These remain to be placed in a wider public health context which links crime, the environment and mental health and wellbeing. More recently, non-systematic reviews have proposed relationships between crime and health which remain to be tested further- for example Acosta and Chavis' (2007) suggestion that community development (including health promotion activities) is a means of reducing crime. Our scoping searches also suggest that there is a quantitative (evaluative) literature, as well as a qualitative literature which can be drawn together to produce recommendations about the most effective means of improving mental health and wellbeing through intervention at a community level. We will access these diverse sets of evidence through there interlinked reviews.

However perhaps the clearest rationale for the current study is given in Section 2 above; in short, the burden of mental health is immense, and crime and fear of crime is acknowledged to be a contributor to poor mental health. It is widely accepted that aiming for mentally healthy neighbourhoods is an important aspect of mental health promotion, and this evidence synthesis project will identify the most effective approaches to intervening at this level to improve community mental health and wellbeing.

Research objectives

The objectives of the project are:
(i) To review the theoretical frameworks which identify potential intervention entry points in the pathways between crime and mental health and wellbeing, and to develop from this a logic model that underpins the types of intervention that stem from the theory;
(ii) To synthesise the empirical evidence (quantitative and qualitative) on the effects on mental health and wellbeing of community-level interventions, including changes to the built environment (such as changes to local environments, "target hardening", security measures, CCTV and other interventions);
(iii) To summarise the evidence on whether the interventions in question have the potential to reduce health and social inequalities; and
(iv) To produce policy-friendly summaries of this evidence which can be used to inform decisions about policy and disseminated to appropriate policy/practice audiences.

2. Background

The WHO Commission on Social Determinants of Health has emphasised that protection from crime is an important component of the healthy living conditions in which people are able to thrive (CSDH, 2008, p. 62-3). However the complex pathways through which crime, and fear of crime influence individual and population health are only partially understood. Crime can have direct health effects causing injury and death. Marked increases in homicide rates have also been noted in societies with large and increasing social inequalities, such as the Russian Federation and Brazil, highlighting a relationship between violence and the fabric of society which is beginning to be elucidated. The relationship between crime and drug and alcohol consumption, together with the known effects of drugs and alcohol on physical and mental health adds a further dimension.

The effect of crime and fear of crime (CFOC) on mental health and wellbeing, although less visible, may be just as important in terms of suffering and health service and economic costs. About 14% of the global burden of disease has been attributed to mental disorders, and if anything the burden of mental disorders is likely to have been underestimated, because of inadequate appreciation of the connectedness between mental illness and other health conditions; for example, mental disorders increase the risk of communicable and non-communicable diseases, and contribute to unintentional and intentional injury (Prince et al., 2007). The Foresight report also notes that risk factors for poor mental health are strongly socially patterned, with populations at most risk including those with limited opportunities for employment, particularly racial and ethnic minority groups, refugees, sex workers, people living with disabilities, addictions or chronic illnesses, homeless people, long-term unemployed, school leavers, and older people living on a reduced income (Jenkins et al., 2008).

Being a victim of crime can be traumatic, but fear of crime and the perception (even if inaccurate) that levels of crime are high or on the increase may have profound effects on mental health and wellbeing. Stafford et al. (2007) in the Whitehall II study of British civil servants found that fear of crime was associated with poorer mental health, reduced physical functioning and lower quality of life. The psychological mechanisms induced by fearfulness, such as pessimism and anxiety, insecurity, frustration, and loss of control, may lead to reduced social engagement, mistrust of others, as well as reduced physical activity and other behavioural changes, leading in turn to a further downward spiral in both mental and physical health. Causation may also operate in the other direction, with poorer mental health leading to increased fear of, and possibly exposure to, crime. Both risk of crime, and fear of it are higher in areas of poverty, unemployment and deprivation, signalling potential pathways to observed inequalities in health. With the economic recession, the issue of crime and its impact on public health may gain in prominence locally, nationally and internationally, making it more important than ever to understand the complexity of the relationships and, more importantly, what options for effective intervention are available.

Crime and fear of crime can also be located within current public concerns about the effects of places on health. In particular there has been increased interest since the 1990s in how aspects of neighbourhoods influence determinants of health, drawing on both compositional (individually-based) and contextual explanations, the latter focussing on social and physical characteristics of local environments (Macintyre & Ellaway, 2000). Some of this literature illustrates the role of local environments on CFOC such as Halpern's UK-based study demonstrating how changes in the local environment (such as putting gates across alleyways) resulted in reductions in depression and anxiety among residents (Halpern, 1995). There is also an older sociological literature on area-level influences on crime (e.g. Sainsbury, 1971). Nonetheless, this is a relatively neglected area, and the authors of the Mental Well-being Impact Assessment Toolkit (2007) noted that "*The influence of ordinary neighbourhoods on mental health ... has remained in the conceptual shadow of key socio-economic, individualised and symptom variables*.' Nationally, the need to undertake mental health impact assessments is emphasised in the National Service Framework for Mental Health (DH 1999), the Public Health White Paper: *Choosing Health* (DH 2004) and the Health and Social Care White Paper: *Our Health, Our Care, Our Say* (DH 2006). These policies prioritise improving mental health and well-being through local strategies. Identifying the links between the local environment and CFOC is also key to local Mental Health Promotion strategies which aim to integrate mental health into local policy, sometimes referred to as creating "mentally healthy public policy".

The National Framework on Mental Health also noted that at any one time one adult in six suffers from one or other form of mental illness, and it documents the immense costs in personal and family suffering and to the economy: mental illness costs in the region of £32 billion in England each year. This includes almost £12 billion in lost employment and approaching £8 billion in benefits payments. It also underlines the importance of actions in communities in tackling local factors which undermine mental health, as part of mental health promotion. Such actions include developing mentally healthy neighbourhoods and other community and environmental improvements.

3. Methods: a. Setting b. Design c. Data Collection d. Data Analysis

The project incorporates a range of evidence synthesis methods including a critical review of theoretical frameworks for taking action on the links between crime and mental health; a systematic review of studies evaluating the effects of community level interventions (aimed at reducing crime) on mental health; and meta-ethnography of qualitative studies to understand more about how and why the interventions work or do not work. This set of three inter-linked reviews will have input from focus groups assembled in London, Glasgow and Liverpool. In particular focus group views will be used to refine the set of research questions, to comment on the theories on pathways, and to help interpret the findings of the reviews and inform the dissemination strategy.

Summary of how the research activities map onto the research objectives
Objective (i): This objective will be met by a critical review of existing theory and conceptual frameworks for taking action on links between crime and mental health and wellbeing and the logic models that underpin the theory. The results of this review will be useful in two ways. First, we will use it in our dissemination activities to raise awareness of what might be tried: the full range of possibilities for different types of interventions in this field and the soundness of the programme logic (or the 'theory of change') underpinning them (Whitehead, 2007). Second, we will use the results to guide the subsequent stages of our evidence synthesis of interventions that have been tried. The use of logic models in the systematic review process has been recommended (see e.g. the recent MEKN report, which emphasises their importance in developing a social determinants approach to tackling health inequalities; Kelly et al. 2007, but this approach is still uncommon. We will conduct focus groups with local communities in London/Liverpool/Glasgow at which the scope of the work will be refined, and again at the end of the project at which findings will be presented and discussed.

Objective (ii): This objective will be met through systematic reviews of intervention studies (i.e. evaluations of interventions) and evaluative qualitative studies, using meta-ethnography of the qualitative evidence where appropriate.
Objective (iii): As well as synthesising the evidence on the overall effects of interventions, we will investigate the differential effects of the reported interventions, stratified by any indicators of social position that are reported in the primary studies. These analyses will be guided by the "PROGRESS Plus" framework (see Section 10 on Statistical Analysis below).
Objective (iv): The content and dissemination strategy- to include the production of policy-friendly summaries- will be informed by discussions with the advisory group, and also by discussions with the focus groups. The findings of the evidence synthesis will be used to produce a short policy summary and a longer report. Both these reports will be circulated through our academic and non-academic networks; and will be discussed with local communities at focus groups. We anticipate that our end users will include national and local policymakers, the police, PCTs, regeneration agencies and spatial and economic planners; and researchers. We will consult with our advisory group to determine the most appropriate outputs for each of these end user groups.

Search strategy: As all elements of the project relate to the environment, crime and mental health, it is likely that a single set of searches will be conducted, and the search strategy for use in each electronic database will be designed to have the capability to capture studies relevant to each of the three reviews (that is the review of theory, the review of intervention studies, and the review of qualitative studies). Specifically, this means that no study design filters will be applied (such as filters to detect RCTs, or other study designs). The relevant databases are those covering health, social science, criminology and urban planning: MEDLINE, EMBASE, CINAHL, PsycINFO, Social Policy and Practice, Social Work Abstracts, ASSIA, International Bibliography of the Social Sciences, Health Management Information Consortium, Inside Conferences, Urbadisc, PLANEX (which includes information on health, housing and anti-crime initiatives), Science Citation Index, Social Sciences Citation Index, Conference Proceedings Citation Index- Science, Conference Proceedings Citation Index - Social Science & Humanities, and Urban Studies Abstracts. Some of these sources include grey literature (e.g. Urbadisc, Planex) but other grey literature sources will also be searched (including ProQuest Dissertations & Theses, Policyfile).

Searches of relevant organisational websites will also be important, including funders of crime and urban planning research. These include the Home Office (UK Government), as reports on research undertaken by or on behalf of the Home Office from 1995 to the present are accessible on its website, including research studies of relevance to crime and justice. Other sources include the Joseph Rowntree Foundation; the Communities and Local Government website; the American Institutes for Research (AIR); COPAC; CORDIS (The European Community's Research and Development Information Service for EU funded research, which offers a means of searching for EU-funded research and development projects); and the US General Accounting Office (GAO) archives which provides analyses, reviews and evaluations and the full reports of which are available online. The CRISP (Computer Retrieval of Information on Scientific Projects) database will also be important; this is maintained by the National Institutes of Health (NIH) and includes federally-funded research projects funded by the NIH. Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), the Centres for Disease Control (CDC), the Agency for Health Care Research and Quality (AHRQ), and the Office of Assistant Secretary of Health (OASH), among others. The Urban Institute website is also key; it carries out social and economic policy research in the US, including research on crime. Other specific sources which will be examined including Criminal Justice abstracts, and the National Criminal Justice Reference Service.

Search strategies developed for previous reviews on the urban environment will be adapted. Since we submitted the outline proposal we have conducted pilot searches in psychological and crime databases to assess the likely volume of relevant literature (which is large). From our previous experience we know that electronic searches and searches of academic

sources will fail to locate non-academic reports and are aware of the risk of publication bias, with studies with "negative" findings being less likely to appear in the peer-reviewed literature, such as non-peer reviewed reports. We have already located some of these reports on websites (e.g. those of housing associations); these studies would meet our review inclusion criteria, as these are evaluative studies, though they do not appear in any academic journal or database and would be overlooked by narrowly-focussed searches. As the project develops we will liaise with relevant bodies to identify other sources of evidence (e.g., the Department for Communities and Local Government). We will also contact researchers involved in previous evaluations (such as the Crime and Disorder Reduction Partnerships) to identify relevant studies.

Review process: The searches will be conducted by experienced information scientists at the Centre for Reviews and Dissemination, University of York. Identification of the studies (i.e. the initial "sifting" of the results of the searches) will then be carried out jointly by two researchers, with disagreements brought to the wider team for discussion. An overall measurement of agreement (e.g. Kappa statistic) will be calculated. The methodological appraisal of the included studies will be conducted by two researchers working independently and the choice of critical appraisal tool will be appropriate to the study design supervised by MP and MMW. We have previously used the Effective Public Health Practice (EPHPP) tool for systematic reviews of public health interventions, and will pilot it (suitably adapted) for use in this project (see References for URL). We will also pilot the use of Risk of Bias and Summary of Findings tables for synthesising and presenting the findings (Higgins & Green, 2008). These have been developed for Cochrane Reviews, and have not yet been widely used in public health systematic reviews, but may prove useful for incorporating judgements about study quality into systematic reviews of complex interventions (GRADE Working Group, 2004). More generally we intend to use the new CRD guidance on systematic reviews in conducting this review, and will ensure that the methods are consistent with the PRISMA (formerly QUORUM) statement on the reporting of systematic reviews (See: http://cochrane.co.uk/en/authors.html).

Our inclusion criteria will be broad, and we will include any experimental or quasi-experimental (Q-E) study evaluating the outcomes of community-level interventions. This includes RCTs, controlled observational studies and other Q-E designs (such as Interrupted Time Series studies). These studies will be appraised and synthesised separately in order to assess the impact of study design on study outcomes. (The critical appraisal process described above can be adapted to cope with a range of study designs).
Pilot searches indicated a potentially large volume of potentially relevant studies. The scope of the literature to be included will be clearly described in the study protocol.

Critical review of theoretical frameworks and programme logic
We will adopt a systematic and transparent approach to the critical review, including comprehensive searching (as described above), use of clear criteria for the theories and frameworks considered relevant, extraction of key elements from each paper and an overall synthesis. The logic model we develop will lay out in diagrammatic form the sequence of steps and pathways between interventions and their intermediate and longer term outcomes to help determine the questions which the intervention review should address, and will be informed by the theoretical review and the focus group discussions. This approach follows existing guidance on the use of logic models in the use of programme evaluations (Rossi et al., 2004).
This review will be conducted first and the findings used to produce an initial theoretical framework describing the inter-relationships among crime, fear of crime and the built environment.

Systematic review of qualitative studies
Although new approaches and techniques have emerged for reviewing qualitative studies, there are still no universally accepted methods (CRD, 2008). Comprehensive searching will be carried out as described in the section above. Relevant studies will include those linked to

interventions concerned with change crime, environment and mental health using any type of qualitative method. We will also consider the inclusion of "standalone" qualitative studies (that is, those not directly related to a specific intervention), that investigate experiences and perceptions of the link between crime, the environment and mental health, if they would help illuminate components of the logic model of interventions. As for the quality assessment, the application of quality criteria to qualitative research is widely debated and no one method has emerged as superior (CRD, 2008). We anticipate adopting criteria that have been developed in other reviews examining people's experiences and perspectives (Thomas & Harden, 2008) and using the outcome of the quality assessment to gain an understanding of the relative strengths and weaknesses of the body of evidence. The findings of qualitative studies will be synthesised using thematic synthesis; we will also consider using a meta-ethnographic approach, where appropriate, as developed by Noblit and Hare (1998), which has been used in innovative systematic reviews on public health issues (e.g., Graham and McDermott, 2005). The method involves summarising the findings of individual studies under thematic headings and tabulating information in a matrix, which allows the identification of a set of recurrent issues which run across the studies. Using this set of issues, the findings of the studies are then re-examined to derive 'second order inferences', which represent new interpretative concepts, over and above the study-level interpretations (Noblit and Hare, 1998). We will use all aspects of the formal qualitative synthesis to help interpret the quantitative findings and to guide the development of a framework for designing future interventions.
The reviews of quantitative and qualitative studies will be initiated simultaneously to facilitate searching and to allow linked studies to be identified more easily - some such studies will relate to the same intervention (that is, they will be part of the same overall evaluation). However other qualitative studies may stand alone. The 3 reviews will fit together as part of a wider synthesis which incorporates data on both processes and outcomes, and which is placed in a wider theoretical context,

It was noted at the review stage by one of the Board Members that there was an element of risk, given that there was a large volume of literature, and suggested a separation between the core focus and what is more peripheral. The more peripheral element could then be dropped if the volume of data became a threat to resources. One way to deal with this is to only include prospective controlled evaluations in the review (as opposed to before/after studies without concurrent controls). When we have conducted the searches and applied the inclusion/criteria, we will have a more accurate picture of the volume of data we have to work with. We will then explore the effects of adopting more restricted inclusion/exclusion criteria and will use this to prioritise the extraction of data (for example we might decide not to extract data from the methodologically weaker study designs). This will limit the risk of being overwhelmed by data. However this approach in itself may introduce bias to the review. We will therefore map the studies with weaker designs to assess whether they evaluate different types of intervention to the more robust studies.

Study population
We will include community-based studies conducted in any country published in English language; and will conduct a separate analysis of UK-based studies in order to facilitate local application of findings. We will also provide details of any studies published in non-English language publications.

Planned interventions
We will include studies of any intervention which aim to reduce CFOC *and* where the intervention involves changes to the built environment or is an intervention delivered at a community or neighbourhood level, with the intention of reducing risk or actual levels of crime or disorder, or fear of crime, *and* where there is a health-related outcome measure. For example, studies of environmental changes (e.g. installation of CCTV) will be eligible. Area-level programmes to reduce disorder (e.g. diversionary programmes; neighbourhood watch projects; and increases in levels of visible policing) will also be eligible. Where systematic reviews have already been conducted (e.g. street lighting) the primary studies will

be examined for health/wellbeing outcomes. Individual-level interventions and measures aimed at offenders will not be included, such as sentencing procedures and policies, and programmes aimed at reducing recidivism. The interventions will not be limited to those that attempt to specifically reduce crime, but will include those which intervene at other points along the causal pathway (for example, interventions that aim to reduce fear of crime/misconceptions about risk of being a victim) as well as interventions for which CFOC was not the intended outcome.

Proposed outcome measures

A broad range of mental health and wellbeing outcomes, including anxiety, depression stress, as well as broader indicators such as fear of crime are relevant. We will also include any adverse effects of interventions. We have noted in our pilot searches that some studies have suggested that health behaviours (such as physical activity) may change as a result of community-level crime reduction interventions (e.g., Loukaitou-Sideris & Eck, 2007). We will therefore extract all relevant health and behavioural data, though the primary health outcomes for the purposes of the review will be mental health outcomes. We will also extract and appraise any qualitative data collected as part of the evaluation of the intervention, for example where people's views and experiences of the intervention have been assessed.

Data extraction and quality assessment

Relevant data will be extracted from the included studies using specially designed data extraction tables. In terms of quality assessment, as described in Section 4 we have previously used the Effective Public Health Practice (EPHPP) tool for public health systematic reviews, and will adapt it for use in this project (see References for URL). As noted above we will also pilot the use of Risk of Bias and Summary of Findings tables for synthesising and presenting the findings of systematic reviews (Higgins & Green, 2008). These have been developed for Cochrane Reviews, and may prove useful for incorporating judgements about study quality into systematic reviews of complex interventions (GRADE Working Group, 2004).

Statistical analysis

The review is likely to identify a wide range of interventions, with a similarly wide range of outcomes reported in the primary studies. We will conduct a narrative synthesis with studies grouped according to intervention type based on programme logic. If there are a sufficient number of studies of similar interventions with similar outcomes, then we will also conduct a meta-analysis using Comprehensive Meta-Analysis (CMA) software (http://www.meta-analysis.com/). In either case we will investigate the differential effects of the reported interventions, stratified by any indicators of social position in the reported studies to explore effects on inequalities. We have routinely done this in previous reviews, and have piloted new methods of graphically presenting the findings (Ogilvie et al., 2008). We will use the PROGRESS-Plus approach which has been used to guide the extraction of data in equity-focussed systematic reviews, where PROGRESS stands for Place Race, Occupation, Gender, Education, Religion, Ethnicity, Social Class, and "Plus" relates to other relevant indications (e.g., age, disability, sexuality) (Tugwell et al., 2006). This will also be used to guide appropriate sub-group analyses, where the data are available.

Ethical arrangements

The review itself does not require ethical approval. However the conduct of focus groups and any other community consultation activities will require ethical approval, which will be sought via the applicants' institutions. We will ensure that the process complies with the ESRC's research ethics framework and will submit the approval documents to the PHR programme as required before conducting the focus groups.

4. *Project Management*

The sponsor will be LSHTM. A review advisory group (AG) will be set up to advise on the objectives and methods, and to advise on the dissemination of the findings to different audiences. The AG will include representatives from health, research, policy, policing and urban planning. Research on psychology and crime will be represented by Prof. James McGuire (Liverpool) and antisocial behaviour and urban environments by Prof Allan Brimicombe (UEL). Dr. John Middleton, Director of Public Health for Sandwell PCT, (which has worked on crime reduction strategies as part of the "Safer Sandwell" Crime and Disorder Reduction Partnership), has also agreed to participate. We also have agreement to participation from the National Policing Improvement Agency (NPIA), and have invited a representative from the Campbell Crime and Justice Review Group. Other non-academic stakeholders will be represented.

Project timetable and milestones:

	Year 1: Months						Year 2: Months					
	1-2	3-4	5-6	7-8	9-10	11-12	1-2	3-4	5-6	7-8	9-10	11-12
Establish advisory group												
Recruitment / ethics approval												
Conceptual review												
Focus groups (i); develop logic model												
Conduct searches												
Review of qualitative studies												
Review of intervention studies												
Focus groups (ii)												
Dev't of policy/practice summary reports												
Final report, findings papers, & methods paper												

5. Service users/public involvement

We recognise the importance of public involvement in public health research and we aim to involve members of the public in the early stages of the project; they will contribute to developing the review questions and objectives, informing the development of the logic model, and at the end by interpreting the review findings. We will do this by conducing focus groups in three sites (Glasgow, London, and Liverpool). In each of these cities we are already currently conducting primary research exploring the relationship between the built environment and public health in poorer areas. We therefore already have public involvement networks in place which we can employ. In London, for example, the Well London RCT led by Adrian Renton already has an extensive programme of public involvement activities in some of the poorest areas of the city. These involve conducting

detailed community consultations about mental health and wellbeing though “appreciative enquiry workshops” and community cafes, in which members of the public can “drop in” to discuss issues of relevance to their community. We will therefore run the London-based “focus group” as a community café or appreciative enquiry workshop (depending on the local community chosen), rather than as a formal focus group, and have requested funds to cover this (including rent of rooms for 1 day, and hiring a facilitator to run the workshop). These workshops/community cafés will thus allow members of the public to offer their views informally on our proposed research questions. They thus offer a degree of flexibility and inclusivity that focus groups may not always be able to achieve, and AR has extensive experience of running these events.

The other consultations will be run as focus groups. In Glasgow, they will be organised by Hilary Thomson who is involved in evaluations of urban renewal programmes and has been involved in conducing qualitative research on public perceptions of environmental influences on health. We are also aware of and supportive of INVOLVE’s work in this regard and in these activities aim to ensure that our practice is in accordance with their good practice guidelines. One of the project team is a member of INVOLVE (MP).

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