

**Violent and non-violent crime against people
with severe mental illness**

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Thesis submitted for the research degree of Doctor of
Philosophy

Declaration

I, Hind Khalifeh, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

Introduction: There is emerging evidence that people with severe mental illness (SMI) are at increased risk of being victims of violence and other crimes, but little is known about the extent, impact and reporting of violence against people with SMI compared with the general population. This thesis aimed to address key evidence gaps on victimisation among people with SMI.

Methods: Work reported in this thesis includes: (a) A systematic review (on prevalence, relative risks and risk factors for violent victimisation among people with SMI), (b) Analysis of national survey data (from the British Crime Survey and the Adult Psychiatric Morbidity Survey), investigating violence against people with self-reported chronic mental illness (CMI) and (c) A new patient survey, based on modified national crime survey methods, investigating recent crime against patients with SMI compared with the general population.

Results: Past-year physical or sexual violence was experienced by around 30% of people with SMI, 12% of those with self-reported CMI and 5-7% of the general population. After adjusting for socio-demographic differences, and compared to the general population, people with CMI had two to three-fold higher odds of being victims of any past-year violence, whilst those with SMI had five to 12-fold higher odds. Victims with pre-existing mental illness were more likely to experience adverse psychosocial effects following violent incidents than general population victims. There is preliminary evidence that risk profiles for community and domestic violence are distinct, and that power imbalance and targeted violence are important interpersonal contexts for violence against people with SMI.

Conclusions: Compared to the general population, people with pre-existing mental illness are at increased risk of being victims of all types of violence, and of experiencing adverse psychosocial effects once victimised. Psychiatric services, and public health and criminal justice policies, need to address violence in this at-risk group.

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Preface

The preface includes:

- A thesis outline
- A summary of my role in the multi-site patient survey reported in this thesis
- A summary of study outputs to date

Thesis outline

The studies reported in this thesis had the following aims:

- To synthesise and critically appraise the evidence on the prevalence, relative odds and risk factors for violence victimisation among people with severe mental illness (SMI)
- To investigate the prevalence and population burden of violence against people with disability (related to mental or physical illness) in England and Wales
- To investigate the prevalence, nature and correlates of violent and non-violent crime against people with severe mental illness compared with the general population

In order to address the first aim, a systematic review and meta-analysis of violent victimisation among people with SMI was conducted, as reported in Chapter 2, and findings were used to identify key evidence gaps.

To address the second aim, secondary analyses of data from two national surveys- the British Crime Survey and the Adult Psychiatric Morbidity Survey- were conducted. Findings of violence by any perpetrator are reported in Chapters 3, and findings on violence by intimate partners are reported in Chapter 4.

To address the third aim, a survey was conducted among a randomly-sampled group of people with severe mental illness under the care of psychiatric services in London. Patients were interviewed using a modified version of the Crime Survey for England and Wales (CSEW) questionnaire. Data from the patient survey were compared to data from the Office for National Statistics contemporaneous national crime victimisation survey. Findings on any violent or non-violent crime

victimisation are reported in Chapter 5. More detailed findings on domestic and sexual violence are reported in Chapter 6. Chapter 7 reports findings on risk factors for community and domestic violence among patients, and on qualitative findings from patient interviews which explored the interpersonal context of violence.

In Chapter 8 the findings from the studies above are synthesised and critiqued, and implications for policy, practice and future research are discussed.

My role in the patient survey

The patient survey was a multisite study of patients under the care of mental health services in North London (Camden and Islington NHS Foundation Trust) and South London (South London and Maudsley NHS Foundation Trust-SLAM). I developed an initial study protocol, which was peer-reviewed and funded by the MRC in April 2009. Independently and at around the same time, Dr Kimberlie Dean, a forensic psychiatrist at the Institute of Psychiatry (IOP), developed a very similar protocol in collaboration with the charity Victim Support, and secured funding from the Big Lottery. Once we discovered the similarities in the planned work, we joined forces, developed a joint protocol, and submitted a joint application to a research ethics committee in January 2011. We gained ethics approval in June 2012, and started recruitment shortly after.

I was the Principal Investigator at the North London site. I led the development of the survey instruments. I adapted the national British Crime Survey Questionnaire for use in this study. I identified additional variables of interest in the SMI population which were not covered in the BCS questionnaire. In order to measure these variables, I chose appropriate existing instruments, or added new questions to the patient survey, as appropriate (see Chapter 5 for details). I created and managed online-based study questionnaires (using the software OPINIO, hosted by UCL). These were used by all researchers across both sites in computer-assisted interviews. I planned and conducted a pilot study to test acceptability and feasibility of study methods. I led patient recruitment in North London. I interviewed 47 patients and supervised the work of two Clinical Studies Officers from the Mental Health Research Network (MHRN) - who interviewed a further 29 patients. Dr Paul Moran

(IOP) was the study's Chief Investigator. He had overall responsibility for the study, and supervised patient recruitment at the South London site. I led data management and analysis. I cleaned and coded all the data. I conducted all data analyses, and refined these analyses after discussion with my PhD supervisors (and other co-authors where the analyses were included in a publication). I planned the peer-reviewed publications, and led the preparation of the manuscripts.

Study outputs to date

I am the lead author on four published / in press papers related to work presented in this thesis; one in Psychological Medicine, two in the British Journal of Psychiatry and one in PLOS One. [2-5] I co-authored a Victim Support publication on the study's findings, [6] and presented the findings at BMA House to a range of stakeholders from government, health and voluntary sector organisations. The media coverage of this collaboration with Victim Support is outlined in the Appendix. [2] I am joint first author on a Cochrane Systematic Review on screening for violent victimisation among people with SMI by mental health professionals. [7] I have presented some of the work reported in this thesis at invited international conferences in Verona (European Network for Mental Health Service Evaluation (ENMESH) conference) and London (Economic and Social Research Council (ESRC) Seminar Series on intimate partner violence among substance misusers). [8]

Glossary

aOR	Adjusted odds ratio
APMS	Adult Psychiatric Morbidity Survey
BCS	British Crime Survey
CI	Confidence interval
CJS	Criminal Justice System
CMHTs	Community Mental Health Teams
CMI	Chronic mental illness
CPA	Care Programme Approach
CSEW	Crime Survey for England and Wales
DV	Domestic violence
PAF	Population attributable fraction
IPV	Intimate partner violence
LSOA	Lower Super Output Area
MSOA	Medium Super Output Area
ONS	Office for National Statistics
OR	Odds ratio
PFA	Police Force Area
PSU	Primary Sampling Unit
RCT	Randomised controlled trial
SMI	Severe mental illness
TNS-BMRB	Taylor Nelson Sofres-British Media Research Bureau
UCL	University College London
UKDA	UK Data Archive
WHO	World Health Organization

Chapter 1. Introduction

1.1 Overview

In this chapter, I will first describe the original focus and final scope of this thesis. I will then outline the importance of the problem of violence against people with mental illness and critically review past research methods used in investigating severe mental illness (SMI) and victimisation. Finally, I will outline the conceptual frameworks used in this thesis, and an initial model which guided study design and analysis.

1.2 Thesis: initial focus and final scope

I am a psychiatrist with research training in epidemiology. At the time of planning and writing this thesis I was working in NHS secondary mental health services which treated adults with SMI (i.e. those with a chronic, disabling mental illness requiring on-going psychiatric care). As in other psychiatric NHS settings, the majority of these patients had a psychotic illness (e.g. schizophrenia and related disorders, bipolar affective disorder, psychotic depression), but some had a chronic, disabling non-psychotic illness (e.g. borderline personality disorder, OCD, recurrent severe depression). I became interested in recent victimisation amongst this patient population because this was frequently reported by patients, and being a victim of recent violence seemed to be associated with poor prognosis. Clinicians often struggled to deal with disclosures of victimisation, because of a lack of clear care and referral pathways for this. In my initial search of the academic literature and health policies on violence and SMI, I found that this focussed on violence perpetrated by patients with psychosis, with the relative neglect of victimisation (as highlighted by several researchers). [9, 10]

With my epidemiological training, I was particularly interested in how victimisation in this population differed in extent, correlates and impact from victimisation in the general population. I therefore conducted the systematic review reported in Chapter 2, to identify key gaps in the existing literature on this. Having identified important gaps, including the absence of any UK-based epidemiological studies comparing victimisation in people with SMI and the general population, I designed a study to address these gaps. There were two main design possibilities; the first was a study which recruited both patients and a general population comparison group (e.g.

neighbourhood controls), and the second was a study which recruited a patient group but used existing data for the general population (e.g. data from the annual national crime victimisation survey). I opted for the latter design, since this made good use of existing data, and provided a large comparison group (about 40000 participants nationally), enabling adequately powered analyses for important but rare outcomes (such as recent sexual or family violence). The former design- recruiting both patients and a comparison group- was not feasible, since there was insufficient time and resources to recruit an adequate sample size for the comparison group. It was also inefficient, given the availability of good quality data from a large sample which was representative of the target comparison population. Together with colleagues at the Institute of Psychiatry (IOP), we designed a patient survey which enabled comparisons with the national British Crime Survey (BCS), and then recruited and interviewed patients under the care of psychiatric services in London. I led analyses, comparing findings from the patient survey with findings from the BCS. These findings are reported in Chapters 5-7. The choice of outcomes- any violent or non-violent crime (Chapter 5), and a more detailed examination of sexual, domestic and community violence (Chapters 6-7)- was motivated by the gaps in the literature. Two studies compared victimisation in patients vs. the general population (Chapters 5 and 6). A third study, which used quantitative and qualitative methods, examined risk factors and context of victimisation within the SMI group (Chapter 7), so allowed for an in-depth analysis of risk factors uniquely relevant to the SMI population.

The other studies reported in this thesis focus on violence against people with 'self-reported disability due to chronic mental illness' (termed chronic mental illness- or CMI- in this thesis). These were opportunistic studies, motivated by the introduction for the first time of a measure of mental illness into the British Crime Survey in 2009; embedded within a question on disability. I was interested in violence against this group as measured in a large national survey, since there was little evidence on this in the UK setting, and the findings would have implications in terms of public health and disability rights. I was also interested in how violence against this group compared to violence against psychiatric patients with SMI. I planned to investigate the extent of victimisation risk in the CMI and SMI populations (compared to those without mental illness) and to explore the risk factors which accounted for any

excess risk. I could then compare risks and possible risk pathways for these two populations, and consider the implications of the findings for the health services with which they are in regular contact- as well as broader policy implications (e.g. for social and criminal justice policies). Using a recent systematic review on violence against people with disability, [11] I identified key evidence gaps on violence against those with CMI- and conducted two studies to address these gaps (reported in Chapters 3 and 4). The choice of outcomes- any violence (Chapter 3) and a more detailed examination of partner violence (Chapter 4) - was motivated by the gaps in the literature. BCS data from different years were used in the different studies, since some outcomes (such as partner violence) are measured in detail only in alternate years.

There were no further details given within the BCS on those with disability in terms of diagnosis or health service use. Therefore, the findings could not be easily related to a clinical population, or compared to the findings from the SMI patient survey. The clinical characteristics of those with self-reported disability due to mental illness have not been described in the literature. Fortunately, another national survey, the Adult Psychiatric Morbidity Survey (APMS), used a similar measure of disability to that used in the BCS, and had detailed information on mental illness in terms of diagnosis and service use. Therefore, data from the APMS was used to describe the clinical characteristics of those with CMI (see Chapter 4). In addition, the APMS used an identical measure of partner violence to that used in the BCS, so APMS data were used to validate BCS findings on partner violence against those with CMI (see Chapter 4).

In summary, the initial focus of this thesis was violence against people with SMI compared with the general population, and relevant studies are reported in Chapters 2 and 5-7. In addition, the recent introduction of a measure of mental illness into the British Crime Survey motivated opportunistic studies on victimisation in this group compared with the general population, and relevant studies are reported in Chapters 3 and 4. The CMI studies were reported before the SMI studies because they relate to a broader population of people with disabling and persistent mental health problems. After reporting the CMI studies, which introduce BCS methodology, I

report the SMI studies, with their narrower focus on secondary mental health service users. I compare the findings from these two populations in the concluding chapter.

Table 1-1 summarises the key features of the surveys used in this thesis, and Table 1-2 summarises the study aims and design within each thesis chapter. The hypotheses and findings for each study are reported in Chapter 8.

Table 1-1 Summary of the three surveys used in this thesis

Survey	Years	Commissioned by	Conducted by	Population setting	& Inclusion & exclusion criteria
British Crime Survey (BCS); renamed Crime Survey for England and Wales (CSEW) in 2012	1982-present (annual since 2001)	Home Office to 2011, Office for National Statistics since 2012	TNS-BMRB	National household survey (England & Wales)	(a) People aged 16 and over living in private residential households, (b) English language proficiency
Adult Psychiatric Morbidity Survey (APMS)	1992, 2000, 2007	NHS Information Centre for Health and Social Care	National Centre for Social Research	National household survey (England)	(a) People aged 16 and over living in private residential households, (b) English language proficiency
Patient Victimization Survey	2011-2013	Not applicable (funded by Medical Research Council & Big Lottery)	KCL & UCL researchers ¹	Multisite, London-based patient survey	(a) People under the care of psychiatrist services in two London NHS mental health Trusts ² (b) under CPA ³ care for at least 1 year (c) living in community, (d) English language proficiency (e) capacity to consent

1. KCL: King's College London; UCL: University College London; 2. NHS Trusts: Camden& Islington and South London & Maudsley NHSFT; serving London boroughs of Camden, Islington, Southwark, Lambeth, Lewisham and Corydon; 3. Care Programme Approach

Table 1-2 Summary of study aims, design, population and outcomes within each thesis chapter

Chapter	Primary aim	Survey	Inclusion criteria for study reported in this thesis	Mental illness definition	Comparison group definition	Violence / crime definition
2	To systematically review the prevalence, risk and correlates of violent victimisation among people with SMI; and conduct meta-analyses where appropriate	NA	(a) RCT, cohort or case control study; (b) adult population; (c) reported on prevalence or risk of recent violent victimisation among people with SMI; (d) not selected population (e.g. forensic, shelter attendees, homeless); (e) published in English,	People with a psychotic illness (schizophrenia, schizoaffective disorder, bipolar disorder, psychotic depression) or those under the care of secondary mental health services	People without SMI	Physical or sexual violence by any perpetrator within the past 3 years (compared in those with vs without SMI)
3	To compare past-year violence against people with self-reported CMI to those with other disabilities or no disability	2009/10 BCS	All BCS survey respondents	People with self-reported disability (functional limitation) due to a mental health condition, lasting at least 1 year	(a) People with self-reported disability not due to a mental health condition and (b) people with no disability	Past-year physical or sexual violence by any perpetrator
4	To compare past-year partner violence against people with self-reported CMI to those without CMI	2010/11 BCS & 2007 APMS	BCS survey respondent subgroup: aged 16-59; completed DV module	People with self-reported disability (functional limitation) due to a mental health condition, lasting at least 1 year	People without self-reported disability due to a mental health condition	Past-year emotional, physical or sexual violence by current or former partner

Chapter	Primary aim	Survey	Inclusion criteria for study reported in this thesis	Mental illness definition	Comparison group definition	Violence / crime definition
5	To compare past-year personal or household crime against people with SMI to the general population	Patient survey & 2011/12 BCS	(a) Patient group: all patient survey respondents (b) Comparison group: BCS survey respondent subgroup: aged 18-65; live in London; no self-reported CMI	Psychiatric patients under CPA care for at least 1 year and living in community	BCS participants aged 18-65 living in London, excluding those with self-reported CMI	Past-year personal crime (physical or sexual assault by any perpetrator, robbery, personal theft) or household crime (burglary, household theft)
6	To compare adulthood and past-year domestic and sexual violence against people with SMI to the general population	Patient survey & 2011/12 BCS	Patient and BCS survey respondent subgroup: aged 18-59; completed DV module	Psychiatric patients under CPA care for at least 1 year and living in community	BCS participants aged 18-59 who completed DV module	Domestic violence (emotional, physical or sexual; by partner or family member) and sexual violence (by any perpetrator) since age 16 and in past year
7	To explore the context and risk factors for past-year community and domestic violence against patients with SMI	Patient survey	All patient survey respondents	Psychiatric patients under CPA care for at least 1 year and living in community	NA	Past-year community violence (by stranger or acquaintances) or domestic violence (by partners or family members)

Key: , APMS- Adult Psychiatric Morbidity Survey , BCS- British Crime Survey, CMI- Chronic Mental Illness, CPA- Care Programme Approach, DV- domestic violence, NA- not applicable, SMI- severe mental illness

1.3 Background

Historically, research on mental illness and violence focused on violence perpetrated by people with psychotic disorders, rather than violence directed against them. [9] Health and legal policies placed a greater emphasis on the risk posed by psychiatric patients to others than on the vulnerability of patients to violence from others. [12] The negative public perception of severe mental illness is in part shaped by the persistent lay belief that people with psychotic illnesses are dangerous and unpredictable. [13] However, a growing body of evidence has found that people with severe mental illness (SMI) are at high risk of being victims of violence, with 10-35% experiencing violence in the past year, and 40-90% experiencing violence over a lifetime. [11, 14] There is also evidence that relative risk of victimisation in people with SMI compared with the non-mentally ill may exceed the relative risk of violence perpetration [9]. The largest victimisation study to date reported that people with SMI under the care of mental health services in Chicago were thirteen times more likely to be victims of past-year violence than general population controls. [15]

In the non-disabled population, violence contributes significantly to the global burden of injuries, physical and mental health problems, substance misuse and death. [16] The health impact of violence among those with mental illness is poorly understood, but is likely to be compounded by pre-existing morbidity and social exclusion.[17] Qualitative evidence suggests that SMI victims face significant challenges in reporting crime and accessing justice. [18] The 2006 United Nations Convention on the Rights of Persons with Disabilities, which has been ratified by 114 countries, highlights the entitlement of this vulnerable group to ‘freedom from exploitation, violence and abuse’, and obliges member states to ‘take all appropriate measures’ to prevent violence, rehabilitate victims and ensure equal access to

justice. Therefore, preventing and responding to violence in people with SMI is important from public health, social justice and human rights perspectives. [16, 19] [20]

Most of the literature on violence against people with SMI is opportunistic- based on studies that were designed to address a different primary research question- hence lacks detail on the nature, context and impact of victimisation. Only a handful of studies have examined the epidemiology of violence in people with SMI compared with the general population. [15, 21-23] These studies reported widely different risk estimates (two-fold to thirteen-fold), probably due to differences in study design, population and measures. These comparative studies are essential for understanding to what extent people with SMI are at excess risk; and what proportion of that excess risk is explained by factors shared with the general population versus factors unique to the patient group. This would in turn guide public health prevention approaches and clinical interventions.

This thesis includes the first UK study to investigate the prevalence, nature and correlates of violent and non-violent crime against adults with SMI compared with the general population. It also examines violence against those with self-reported disability due to chronic mental illness (CMI) in a nationally representative sample.

1.4 Definitions

This section defines the main outcomes (being a victim of interpersonal violence; being a victim of crime) and the main exposures (severe mental illness and self-reported disability due to mental illness). Other study measures are defined in subsequent chapters.

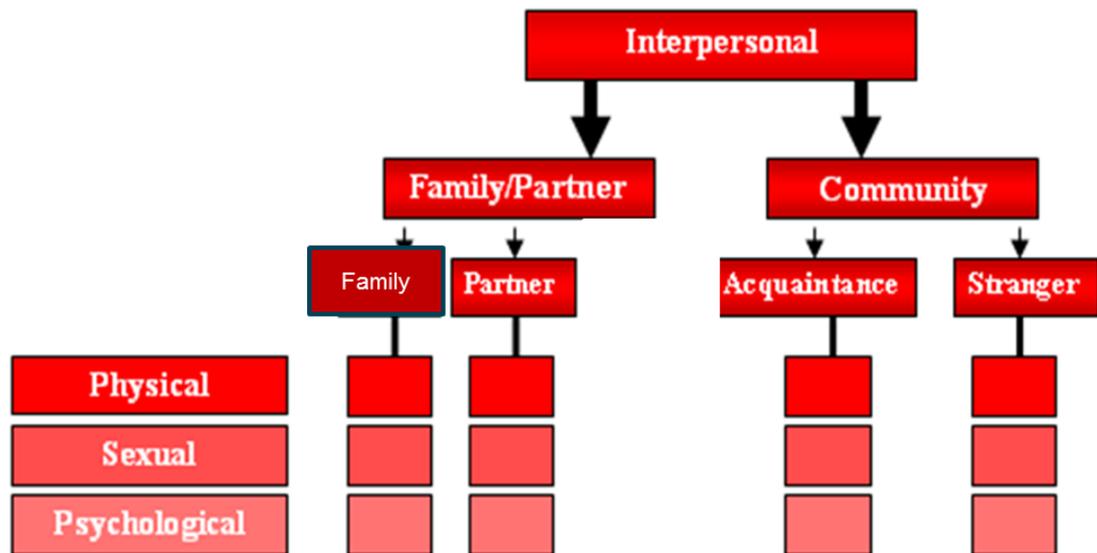
1.4.1 Interpersonal violence

The main focus of this thesis was on interpersonal violence in adulthood, and followed the World Health Organization's definition:

"The intentional use of physical force or power, threatened or actual, against another person that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation." [16]

This definition includes physical and sexual violence, whether perpetrated by family members, partners, acquaintances or strangers; as illustrated in Figure 1-1. [16]

Figure 1-1 World Health Organization's classification of interpersonal violence, modified from Krug (2002) [16]



This thesis focused on the extent to which people with pre-existing mental illness were at risk of violence, so the role of violence in causing or precipitating SMI was not investigated. However, exposure to past violence is an important predictor of further victimisation, and the study investigated the prevalence of childhood abuse in

people with SMI, and its correlation with being a victim of violence in adulthood. The study focused on adults aged 18-65, so excluded elder abuse.

1.4.2 Crime victims

Whilst the study focused on interpersonal violence, it measured the broader outcome of being a victim of any violent or non-violent crime. The definition of crime used in national [24] and international crime victimisation surveys [25] was followed: being the victim of any (a) personal crime: defined as actual or threatened physical or sexual assaults; robbery; thefts from the person or thefts of personal belongings- directed against the survey respondent (b) household crime: defined as burglary, thefts from households or criminal damage- directed against the survey respondent or other household members.

An internationally agreed definition of crime victims is given by the 1985 UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power [26]:

“‘Victim’ means persons who, individually or collectively, have suffered harm, including physical or mental injury, emotional suffering, economic loss or substantial impairment of their fundamental rights, through acts or omissions that are in violation of criminal laws operative within Member States, including those laws proscribing criminal abuse of power.

A person may be considered a victim, under this Declaration, regardless of whether the perpetrator is identified, apprehended, prosecuted or convicted and regardless of the familial relationship between the perpetrator and the victim.”

In line with this UN definition, crime surveys define crime victimisation according to self-reports by survey participants, whether or not these incidents were reported to

the police or legal authorities, and include measures of both domestic and community violence.

1.4.3 Severe mental illness (SMI)

There is no internationally accepted definition of severe mental illness (SMI). Nonetheless, it is a useful concept, since it defines a group of patients with more severe forms of mental illness who typically need care from secondary mental healthcare services. It is often used in contrast with the term ‘common mental disorders’, which usually refers to people with anxiety or depression who need care from primary healthcare settings.

In the UK, a Department of Health working group reviewed the international literature on SMI definitions, [27] and found that most definitions required a combination of several of the following core criteria:

- a. Certain diagnostic categories (namely schizophrenia and related disorders and mood disorders)
- b. Chronic illness
- c. Disability (in role and day-to-day functioning)
- d. Intensive contact with services (or the need for intensive formal or informal support); with some definitions also including
- e. Degree of risk to self or others

Most definitions excluded people with a primary diagnosis of substance misuse, and some excluded those with a primary diagnosis of personality disorder.

From a theoretical perspective, it is unclear whether victimisation risk is more closely related to diagnosis (criterion (a) above) or to the chronicity and degree of functional disability (criteria (b) & (c)). In this thesis, the definition of SMI in the patient survey was based on diagnosis, chronicity and contact with services (see Chapter 5 for details).

1.4.4 Severe mental illness and disability

In international research, policy and law, SMI is sometimes subsumed under the broader category of disability. The WHO's International Classification of Functioning Disability and Health defines disability as:

“Impairments, activity limitations and participation restrictions” arising from “the interaction between an individual (with a health condition) and that individual’s contextual factors (environmental and personal factors).” [28]

This definition helps to frame violence as a contributor to disability in people with SMI, whereby interventions targeted at reducing violence and addressing its consequences would reduce disability or functional impairment. [11] Another advantage of locating the literature on mental illness within that of disability is that social and legal interventions addressing violence among people with SMI can be framed within the rights afforded by national and international disability legislation (e.g. the UN Convention on the Rights of Persons with Disabilities and the UK Equality Act 2010) [29].

1.4.5 Self-reported disability due to chronic mental illness (CMI)

In Europe and the UK, a measure of self-reported disability is usually incorporated into national surveys with a primary focus other than health or disability (e.g. education, employment, criminal justice, etc...), in order to examine the experiences of this group and to identify any inequalities. In the UK, the government introduced a harmonised measure of disability into national surveys in 2007 (and into the BCS in 2009) in order to meet its obligations under equality legislation and to enable international comparisons of key social outcomes for this group. [30]

Disability is usually measured by asking respondents if they have suffered from limitations in day to day function due to a chronic health condition (usually lasting at least a year). Those who report functional limitation are then asked if they have experienced one or more of a number of specific conditions (including physical illness, sensory impairment, mobility impairment and mental illness), so that the experiences of those with different disabilities can be compared.

The method above is used in the BCS. The population of interest in this thesis is BCS respondents who reported functional limitation due to ‘a mental health condition, such as depression’. The victimisation experiences of this group are compared to those with a disability due to other conditions (Chapter 3); to those without a disability (Chapters 3 and 4) and to those with SMI (Chapter 5). As stated above, the advantage of examining this group in a national survey, and within the umbrella of disability, is that any findings on inequality (e.g. in terms of victimisation and access to the criminal justice) can be related to disability legislation and used to motivate policy change.

The clinical characteristics of those with self-reported mental disability have not been described in the literature. This group is likely to be heterogeneous in terms of diagnosis and health service use. It is likely to include a subgroup of people with SMI, and therefore to overlap with the SMI patient survey population. The clinical characteristics of those with mental disability are examined using new data analysis from the APMS in Chapter 4.

1.5 SMI and victimisation: methodology overview

The existing literature on victimisation risk among people with SMI uses three main methods. In this section, the advantages and disadvantages of each are discussed, with an emphasis on the method used in this thesis; the crime victimisation survey.

Crime against people with SMI has been measured using one of following three approaches:

- (a) Studies with a primary focus on the perpetration of violence by people with SMI- with a limited number of questions on victimisation. [31, 32]
- (b) Studies with a primary focus on quality of life or community functioning among people with SMI, which address a number of social, occupational and interpersonal domains, including a limited number of questions on experiences of violent or non-violent crime. [33, 34]
- (c) Studies with a primary focus on crime victimisation, mostly using questionnaires based on national crime victimisation surveys. [15, 23] These focus on recent experiences of violent and non-violent crime, often with detailed questions on the nature and frequency of these experiences, reporting to criminal justice agencies, and the need for support.

Each of these methods has its advantages and limitations, as discussed below.

1.5.1 Methodology: Perpetration studies

Studies focusing on perpetration have the advantage of measuring violence committed by and against study participants. These experiences often overlap, and understanding the extent of their overlap, and identifying the risk factors associated with victimisation only, perpetration only or a mixture of the two, can help direct interventions. [35] However, these studies often lack detail on victimisation experiences, and tend to include forensic or other high-risk groups- [36], [35] [32, 36]so may not be representative of the SMI population.

1.5.2 Methodology: Quality of life studies

Measuring victimisation among people with SMI using studies of quality of life or community functioning has the potential advantage of allowing researchers to investigate the broader social context of victimisation in this population, and its interaction with other important determinants of quality of life or psycho-social function. [37] However, these studies have tended to analyse victimisation in isolation, and were further limited by lack of detail on the context or consequences of victimisation.

1.5.3 Methodology: Crime victimisation surveys

Crime victimisation surveys were designed to be used in nationally representative household samples. This section summarises the historical development of crime surveys and their key strengths and limitations, followed by a discussion of their use among the SMI population.

1.5.3.1 Crime victimisation surveys in the general population

In the developed world, national crime victimisation surveys have been in use since the late 1970s (e.g. the annual US National Crime Victimization Survey) [38] or the early 1980s (e.g. the annual British Crime Survey). [39]. The International Crime Victimization Survey was developed in the late 1980s to enable cross-national comparisons, and has since been conducted in around 80 countries across all world regions. [40] These surveys recruit a nationally (or less commonly regionally) representative sample of household residents, and use lay interviewers to conduct face-to-face or telephone interviews on recent experiences of crime. The survey findings are used to measure the extent and trends of victimisation, to identify high risk groups and to assess the adequacy of criminal justice system responses against national and international standards. [40]

A key advantage of crime victimisation surveys is that they measure self-reported experiences of violent and non-violent crime, whether or not these experiences were reported to the police or other criminal justice agencies. Alternative measures include officially recorded crime statistics (i.e. crime statistics based on police or court records), which are subject to variations in rates of reporting of crime by victims to criminal justice agencies, differences across time and place in the recording and classification of crimes by those agencies, and political pressure to demonstrate effectiveness of crime-prevention policies. [41] Therefore, crime surveys are seen as a more reliable measure of crime experiences. [40] However, even crime victimisation surveys may be subject to political pressure, and to changes in perception about what constitutes a crime (e.g. rape), which may influence how crime surveys are designed, which experiences they measure and how their results are reported. In the UK, these pressures were recognised by a review of crime statistics conducted by the National Statistician in 2011, [42] with the subsequent

transfer of responsibility for the national crime survey from the Home Office to the Office for National Statistics.

One disadvantage of crime victimisation surveys is that domestic and sexual violence tend to be under-reported in these surveys. This under-reporting has been shown by comparing findings from general crime surveys with findings from surveys specifically designed to measure domestic or sexual violence in the same settings (e.g. the US National Intimate Partner and Sexual Violence Survey [43], the Australian Personal Safety Survey [44], and the global WHO intimate partner violence surveys [45]). Specific domestic or sexual violence surveys consistently find a higher prevalence of these experiences than general crime surveys. [46] This may be due to the different framing or context in these surveys; for example, incidents of domestic violence may not be reported in crime surveys if they are not perceived by victims as a criminal matter.

Varying estimates between crime and domestic violence surveys may also be due to methodological differences. Disclosure of domestic violence can put victims at risk, especially when interviews are conducted at home within earshot of perpetrators. Domestic violence surveys tend to pay particular attention to confidentiality and safety, in line with the World Health Organization's ethical and safety standards on domestic violence research, [47] so may enable greater disclosure. The effect of methodology on domestic and sexual violence estimates is clearly demonstrated in findings from the British Crime Survey (BCS). The BCS measures domestic and sexual violence using two methods: a face-to-face questionnaire and a self-completion module. Estimates based on the latter tend to be much higher; with Home Office analyses showing that only a fifth of those reporting domestic and sexual violence in the BCS self-completion module also report these experiences in the face-to-face questionnaire. [48]

In summary, the key advantage of crime surveys is that they enable a measure of victimisation experiences as reported by victims, independent of reporting to criminal justice agencies, but their main disadvantage is that they may underestimate certain experiences- such as domestic or sexual violence- due to survey framing or methodology.

1.5.3.2 Crime victimisation surveys in people with SMI

Measuring victimisation among people with SMI using the same instruments employed in national crime surveys has two main advantages: the first is a primary focus on victimisation, with sufficient detail on its nature, correlates and consequences to enable the development of crime prevention measures. The second is its comparability to data from the general population. Comparison with the general population allows identification of any inequalities in vulnerability to crime and in the response of criminal justice agencies. It also enables an understanding of risk factors shared with the general population versus those unique to the SMI population. The main disadvantage of this method is that crime is contextualised within a criminal justice framework, which may not translate easily into a clinical or public health framework. For example, a significant proportion of a crime survey is devoted to investigating experiences with the criminal justice system, with relatively little detail on contact with healthcare professionals.

There are advantages and drawbacks to using self-reported versus officially-recorded measures in the SMI population. Officially-recorded crime may underestimate victimisation among people with SMI even more than among the general population; since there is evidence that victims with SMI are less likely to report victimisation to criminal justice agencies than general population victims, [18] and that their cases tend to progress less within the criminal justice system. [49] On the other hand, self-reported measures among people with SMI may be subject to specific biases, such as those arising from cognitive impairment (which may affect ability to recall crime over a given time period), and those arising from symptoms such as suspiciousness or persecutory ideas (which may lead to over-reporting of crime). Nonetheless, several studies have demonstrated the reliability of self-reported victimisation by people with SMI. [15, 50, 51] For example, in a US-based study which on victimisation among patients with SMI, authors tested for telescoping bias (whereby participants report events that occurred prior to the requested recall period, leading to inflation in the prevalence estimates). This is tested for by conducting a ‘bounding interview’ (which ask about prior victimisation but do not use this data in the study) and a subsequent ‘bounded interview’ (which ask about victimisation in the period since the bounded interview). Using this method, the authors found no evidence of telescoping bias (reporting of incidents

prior to period of interest), but did find evidence of recall bias (failure to recall incidents within period of interest). This bias would lead to an underestimate of victimisation experiences. Again in the US, Goodman et al examined reports of childhood and adulthood abuse by psychiatric outpatients, and found evidence for reliable reporting across a baseline interview and a repeat interview two weeks later. [50] In a UK-based study, Fisher et al examined the validity of retrospective recall of childhood abuse by patients with first episode psychosis. They found evidence for concurrent validity (comparing patient responses to two child abuse measures; and comparing patient responses to clinical case notes) and for stability of recall over a 7-year period. They found no correlations between reporting of abuse and severity of current psychotic or mood symptoms, providing evidence against reporting bias due to current psychopathology. [51] Therefore, there is evidence from the UK and the US from several patient samples that recall of abuse by patients is reliable across times and measures. Relying on external sources (such as family members, acquaintances or criminal records) to validate patients' reports is problematic, since patients often do not disclose these experiences to anyone. In addition, family members or acquaintances could be involved in the abuse, so questioning could put patients at risk and their responses may not be valid.

Given the advantages and limitations discussed above for the different methods of measuring victimisation among SMI patients, and the primary aim of this thesis of examining the epidemiology of victimisation among people with SMI compared with the general population-, the UK crime victimisation survey was used in this thesis. This enabled detailed examination of the prevalence, correlates impact and reporting of different types of violence in patients compared with a general population comparison group.. As discussed above, the British Crime Survey includes a module specifically designed to measure domestic and sexual violence, so has fewer limitations for measuring this outcome than other national crime surveys.

1.6 Conceptual frameworks

Whilst the main methodology in this study was based on the national crime survey, additional measures were used in our patient sample to address questions specific to

the SMI population. The choice of these additional measures, and the interpretation of study findings, was guided by the conceptual frameworks discussed below.

Research on mental illness and violence comes from the diverse fields of public health, [16] social psychiatry, [52] social epidemiology, [53] sociology, [13] psychology, [54] criminology, [55] forensic psychiatry, [35], biological psychiatry, [56] and economics. [57] Each of these disciplines places violence (and mental illness) within different broader contexts. They each use a number of theoretical perspectives for understanding violence, with some theoretical overlap across disciplines. For example, in criminology violence is placed within the broader themes of crime and criminal justice policy and in social psychiatry it is placed within the broader themes of recovery and social exclusion. These contexts matter, because they shape study design, interpretation and implications for prevention measures.

Concepts from public health, social psychiatry and forensic psychiatry were used in this thesis. These conceptual frameworks were chosen because there were best suited to the methods and populations of the studies reported in this thesis (epidemiological studies on victimisation among people with mental illness), and to the motivation for carrying out these studies (informing clinical practice and public health policies). The World Health Organisation's 'ecological model' on violence was chosen because it was a good fit for the epidemiological approach, and because it focused on potentially modifiable risk factors of relevance to public health interventions. Concepts or models from social psychiatry (e.g. stigma, social exclusion) and from forensic psychiatry (e.g. developmental models of violence and mental illness) were used because they specifically focused on the population of people with mental

illness, and helped clarify risk factors shared with the general population versus those that are unique to this population. In addition, models that explain gender differences in victimisation risk were explored, because gender is key determinant of risk in the general population, but past literature suggested that risk profile by gender differed among people SMI from the general population.

Other models were considered but not used in this thesis. For example, criminology models were based on sociological theories that could not be examined using the survey methods in this thesis. There were some useful concepts within these models, for example the effect of socio-cultural factors such as social disorganisation on victimisation risk, but these were captured in the social psychiatry models, and the latter were more relevant to population of interest.

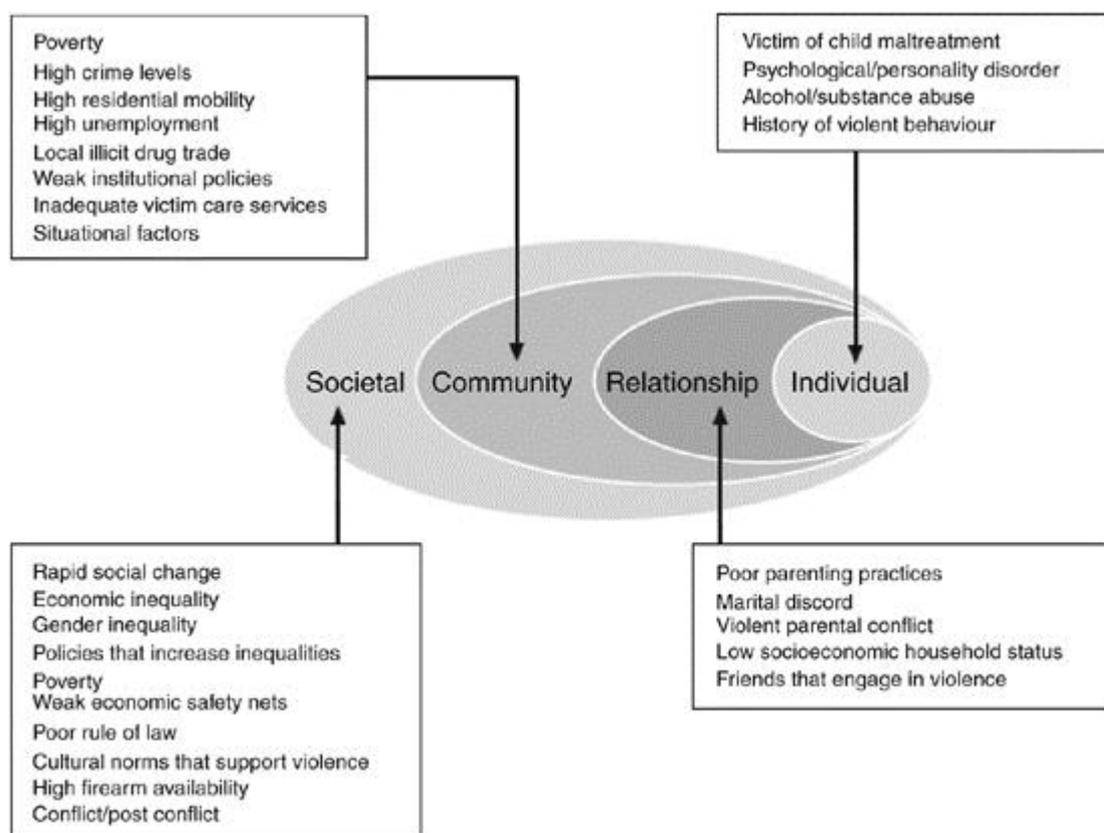
The concepts used in this thesis are discussed below.

1.6.1 Public health framework: the ecological model

The World Health Organization's (WHO) World Report on Violence and Health [16] argues that the benefit of a public health approach in violence research is that it focuses on the *prevention* of violence at the level of the *population*. This approach begins by examining and comparing the scale, nature and determinants of violence in different populations; followed by identification of modifiable risk factors that account for a significant proportion of the public health burden of violence. This is followed by developing and evaluating intervention measures to address these risks. [16, 58] The WHO proposes an 'ecological model' of violence, which organises risk factors at the personal, relationship, community and cultural levels (see

Figure 1-2).

Figure 1-2 World Health Organization's ecological model of violence, reproduced from WHO (2004) [59]



This model is not based on a single theory. The risk factors included at different levels are simply those identified from the multidisciplinary literature as being consistent determinants of risk, with an emphasis on modifiable risk factors that could form the target of public health interventions. [60] Two common themes emerge as risk factors: social inequality / social exclusion, and exposure to violence (as a victim or perpetrator) throughout the life course.

The advantage of the ecological framework is that is evidence-based, and privileges factors that can be modified to reduce health burdens. Its disadvantage is the lack of a coherent theoretical model, which may limit understanding of 'the active ingredient' that links a given risk factor with violence. A fuller understanding of risk pathways requires a more theoretical approach. This framework can nonetheless be linked to theory. Factors identified from epidemiological studies can be re-organised into conceptually related areas (e.g. factors related to social

exclusion, developmental risk factors, etc.), and relevant theories can be used to deepen aetiological understanding and guide prevention measures. [61-63]

This framework can be used to identify risk factors among people with SMI that are shared with the general population, such as childhood abuse, violence perpetration and substance misuse. [14] It can also be adapted to include other factors more specific to the SMI population (for example conflict directly related to acute psychotic symptoms, or hate crime motivated by the victim's mental illness). This study aimed to identify key correlates of victimisation among people with SMI, and to estimate the extent to which shared risk factors accounted for any excess risk compared to general population controls.

1.6.2 Gender and risk of victimisation

The experiences of violence have a very clear gender divide in the general population. Epidemiologically, the majority of interpersonal violence (when violence by any perpetrator is considered) is perpetrated by men against men. This includes fatal violence, where around three quarters of victims are men, [64], and non-fatal violence, where the ratio of male to female victims is around 3:1. [16] [16, 58] Exceptions to this include partner violence and sexual violence, where the majority of victims are women. [16, 58]

1.6.2.1 Violence against men

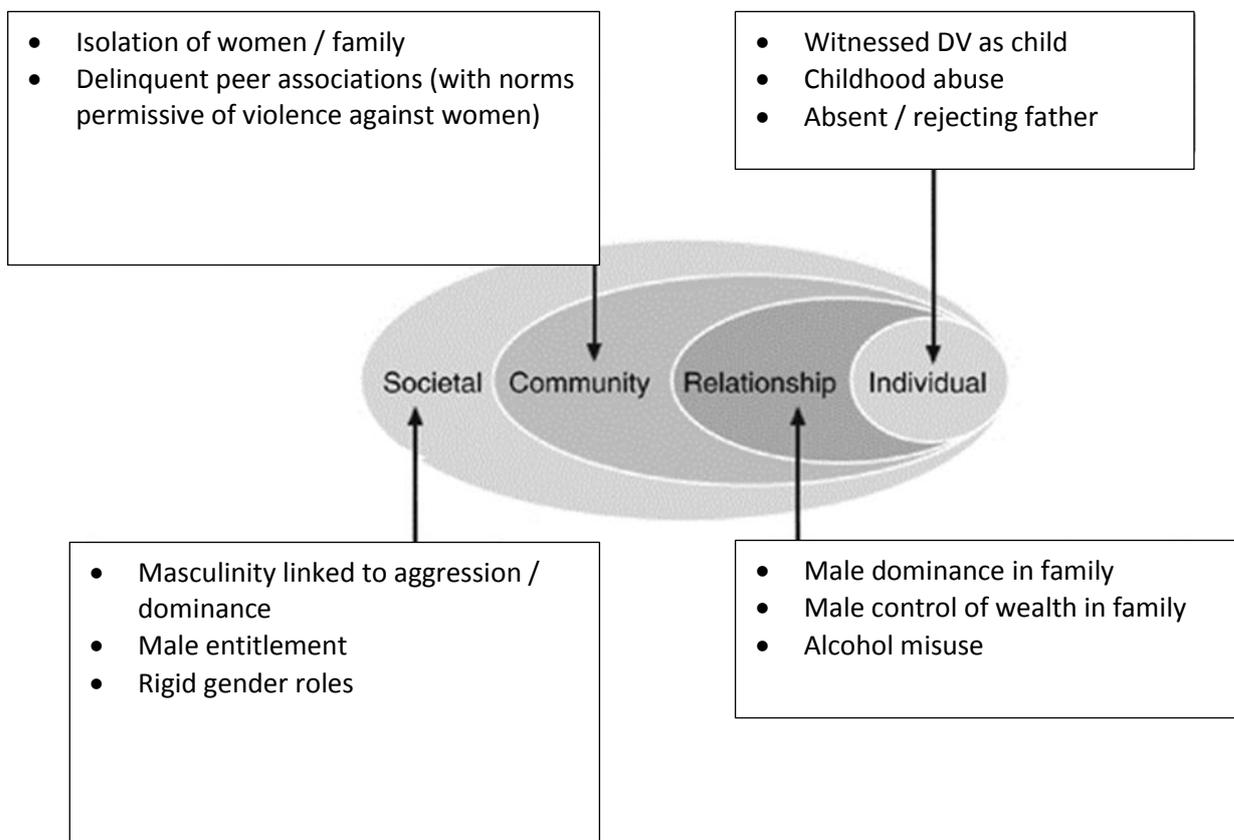
Despite the clear excess risk of victimisation for men, most gender-based models of victimisation focus on female rather than male victims; models of men and violence focus on violence perpetration. Men's risk of being victims is often seen in the context of mutual violence, for example the increased risk of being victim and perpetrator among young, socially disadvantaged men who are involved in a violent subculture. Theories on why men are more likely than women to be involved in violent behaviour include biological theories (for example, genetic and hormonal influences on aggression, which act differentially in men and women), [65] psychological theories (for example, social learning theories of violence based on behavioural modelling and reinforcement) [66]) and social theories (for example, the social disorganisation theory, whereby people are more likely to engage in violence

in societies with weak informal social controls and poor social capital; and where a violent subculture develops- normally among young men influenced by delinquent peers). [61], [53] Insights from these theories are included in the WHO ecological model outlined above, which lacks an explicit gender focus, but includes many risk factors of relevance to violence against men. Models on men and violence do not make a distinction between men as both victims and perpetrators versus men as victims only. The latter may be particularly relevant to men with disability, including those with SMI, who may be at risk due to perceived vulnerability and lack of social or legal protection.[16, 41, 67]

1.6.2.2 Violence against women

Most gender-based victim models have focused on women as victims of domestic or sexual violence (usually by male perpetrators). Historically, theories of domestic and sexual violence were divided into those based on stress, social learning and personality theories, which emphasised the intra- and interpersonal origins of violence, and those based on feminist theories, which emphasised gender-power inequalities and their socio-political origins. [1] It has been argued that the former sought to explain why individual men were violent, whilst the latter sought to explain why women as a group were the usual targets. [1] In the 1990s, Heise proposed an ecological framework for violence against women, which integrated findings across theories, and included factors consistently associated with partner and sexual violence in empirical studies.[1] A modified version is shown in Figure 1-3, highlighting gender-specific risk factors.

Figure 1-3 Ecological model as applied to violence against women (adapted from Heise) [1]



In summary, gender-based violence models differ for men and women, in that they focus on men as perpetrators and women as victims. There is an implicit assumption that violence perpetration and its correlates (such as substance misuse and social deprivation) may be more closely associated with victimisation in men than in women. This assumption has not been empirically tested among those with mental illness, as few studies report risk factors for victimisation by gender within the same study.

1.6.2.3 Gender, violence and SMI

There is some evidence that the gender gap seen in the general population is attenuated among people with SMI, with men and women being at equally high risk of violence. [68] However, most studies did not differentiate between domestic and community violence, so these findings are difficult to interpret. For example, women may still be at greater risk of domestic and sexual violence and men at greater risk of community violence, but the gender gap for overall victimisation risk may narrow if

there are particularly high levels of domestic and sexual violence against women. Conversely, it could be that there is a real narrowing in the gender gap for different violence subtypes, with similar risks for men and women of community and domestic violence. This is important in terms of developing interventions, but also as indirect evidence on whether gender-based models from the general population apply to the SMI population. This study investigated the extent and risk profile of domestic and community violence by gender, and used findings to assess the extent to which the models above apply to the SMI population.

1.6.3 Social psychiatry

Social psychiatry has been defined as the field of psychiatry which is “*concerned with the effects of the social environment on the mental health of the individual, and with the effects of the mentally ill person on his / her social environment*”. [69] The social environment is conceptualised as a series of concentric circles extending from a relationship between two people to the broader cultural context, echoing the ecological framework described above.

The concepts of stigma, discrimination and social exclusion are particularly relevant to understanding why people with mental illness may be at excess risk of violence from others. Stigma was defined by Goffman as ‘*an attribute that is deeply discrediting*’, mainly in the context of negative stereotyping by others. [70] Bruce and Phelan have defined stigma in terms of the following key components: [71]

1. Labelling, where people identify and label human differences
2. Stereotyping, where labelled differences are linked to undesirable characteristics or negative stereotypes
3. Separation, where those who have been labelled are put into a category which is separate from the norm
4. Discrimination and status loss, leading to unequal outcomes
5. A power context, where stigma is applied by those with access to social, economic and political power

This definition is useful, because it explicitly links stigmatising attitudes by those in positions of power to discriminating behaviours, with subsequent loss of status and opportunities- which can potentially lead to acquisition of further stigmatising attributes, and widening of the power differentials. Recent international research in

27 countries found that a third to half of people with SMI experienced actual discrimination in the areas of making or keeping friends, family relations, sexual relations and finding or keeping a job; and more than half anticipated discrimination in these areas. [72] Therefore, there was widespread stigma in the occupational and interpersonal domains, which can lead to social exclusion, with limitations in social, cultural and political participation.

In terms of the relationship between stigma and victimisation risk, negative attitudes towards people with SMI may be a direct motivation for violence, in the same way that people may be targeted in 'hate crimes' motivated by other personal attributes such as race, religion or sexuality. [73] Stigma may increase risk indirectly, via social exclusion and low socio-economic position. [16] Stigma may also limit the access of people with SMI to fair treatment by the criminal justice system.

Stigma theories help to explain the causes and consequences of stigma among people with SMI, so suggest mechanisms for victimisation risk and avenues for interventions. [74] Discrimination and its effects can usefully be linked to legal rights under disability-related legislation.

1.6.4 Forensic psychiatry

Forensic psychiatry is concerned with understanding and managing the link between mental illness and criminal offending. Insights from research on violence perpetration by people with SMI are relevant to understanding victimisation in two ways. Firstly, perpetration and victimisation often overlap. One may lead to the other, and they share common underlying risk factors. [10, 75] Secondly, this research provides a useful model of integrating findings from psychiatry with those from other relevant disciplines, such as criminology and social epidemiology.

A systematic review of violence perpetration by people with schizophrenia and other psychoses, which included twenty studies on more than 18,000 patients, found that the odds of perpetrating violence was elevated among men and women with psychosis compared to general population controls (with a random-effects pooled OR of 4 (CI 3-5) among men, and 9 (CI 4-15) among women). [76] Substance misuse accounted for much of the excess risk; men with psychosis and co-morbid

substance misuse had eight-fold elevated odds compared with the general population, whilst those without co-morbid substance misuse had two-fold elevated odds.

A meta-analysis of 110 epidemiological studies on risk factors for violence perpetration among people with psychosis found that violence perpetration was strongly correlated with a history of victimisation (six-fold elevated odds) and substance misuse (two to tenfold elevated odds). It was moderately associated with premorbid factors (such as childhood abuse and parental criminality) and with being male. It was weakly correlated with positive symptoms and poor treatment adherence. [75] These findings suggest that violence perpetration among people with psychosis is more strongly correlated with factors shared with the general population than clinical, illness-specific factors. They also suggest that SMI may modify the effect of gender on risk, with higher relative odds for women than men with psychosis when compared with the general population.

Mental illness and violence perpetration have been theoretically linked via biological risk factors, such as personality, intellectual disability and genetic factors; [56] via clinical risk factors, such as antisocial personality disorder and specific psychotic symptoms (e.g. threat-control-over-ride symptoms), [77] and via the social and environmental context, such as poverty and social disorganisation. [52] Using longitudinal studies, researchers identified distinct developmental trajectories of violence (childhood vs. post-illness onset), with distinct correlates. [78]

Several influential models tried to integrate these findings. The model by Monahan and Steadman, which was largely based on epidemiological findings from the McArthur Risk Assessment Study, conceptualises four categories of risk factors: [79]

- Personal / dispositional (e.g. age, gender, impulsivity)
- Developmental / historical (e.g. child abuse, past violence perpetration, psychiatric admission)
- Contextual (e.g. social support, environmental stress)
- Clinical (e.g. substance misuse, psychotic symptoms).

This model is useful in distinguishing fixed personal and historical risk factors from dynamic, potentially modifiable contextual and clinical ones; and has been used extensively in clinical risk assessment and management. [80] Hiday et al developed a model of SMI and violence, which aims to explain the association between victimisation and perpetration. This model proposes that the social context of the lives of people with SMI- where they are socially excluded and live in areas with high levels of social disorganisation- is associated with stressful events, substance misuse and victimisation; which in turn are linked to mistrust, tense interpersonal situations and violence- especially in the presence of threat-control over-ride symptoms and bizarre behaviour. [81]

The above body of research suggests the need to include social context, violence perpetration, substance misuse and gender within a conceptual framework for victimisation- and to integrate clinical risk factors within this broader framework.

1.6.5 SMI and victimisation: an initial model

Integrating insights from the above models, people with SMI are likely to be at risk of victimisation due to factors shared with the general population, as well factors specific to mental illness. These factors would operate at multiple levels, from the individual to the cultural. Potentially relevant factors are outlined in Figure 1-4. These factors were identified from the general population literature, [16] from past systematic reviews on risk factors for victimisation in the SMI population, [14] and on the basis of the theories outlined above.

Epidemiologically, the risk factors outlined in Figure 1-4 are not independent but tend to co-occur, and to have complex inter-relationships. For example childhood abuse is associated with a range of adverse psychological and social outcomes in adulthood, including substance misuse and violence experiences. [82, 83] It is also associated with a higher incidence of psychotic illnesses. [84]. It could therefore be a

common underlying risk factor for SMI and victimisation. Some of the potential causal pathways are shown in Figure 1-5.

This initial model will be revisited in subsequent chapters, and updated according to study findings.

Figure 1-4 Ecological model as applied to people with SMI

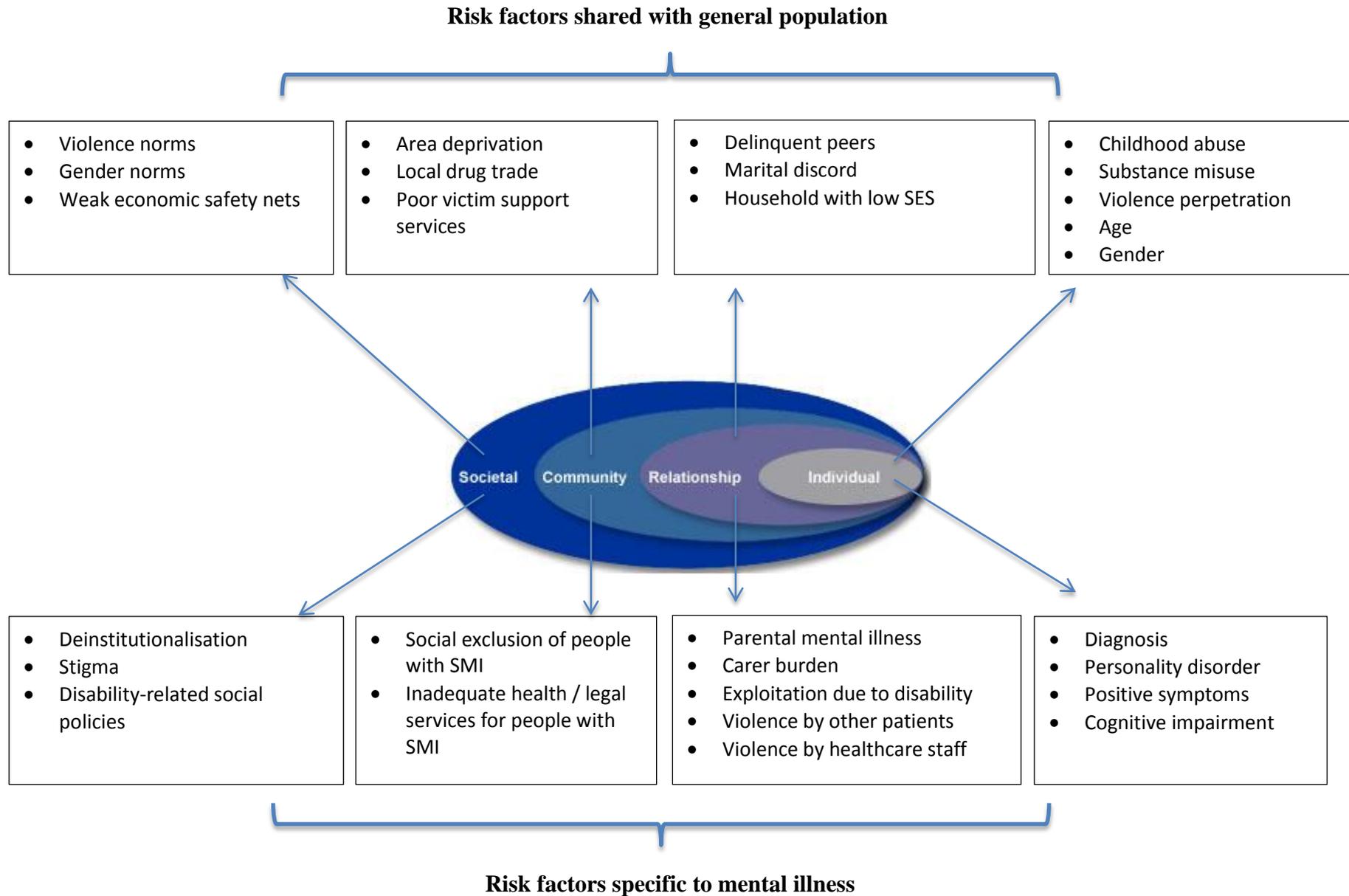
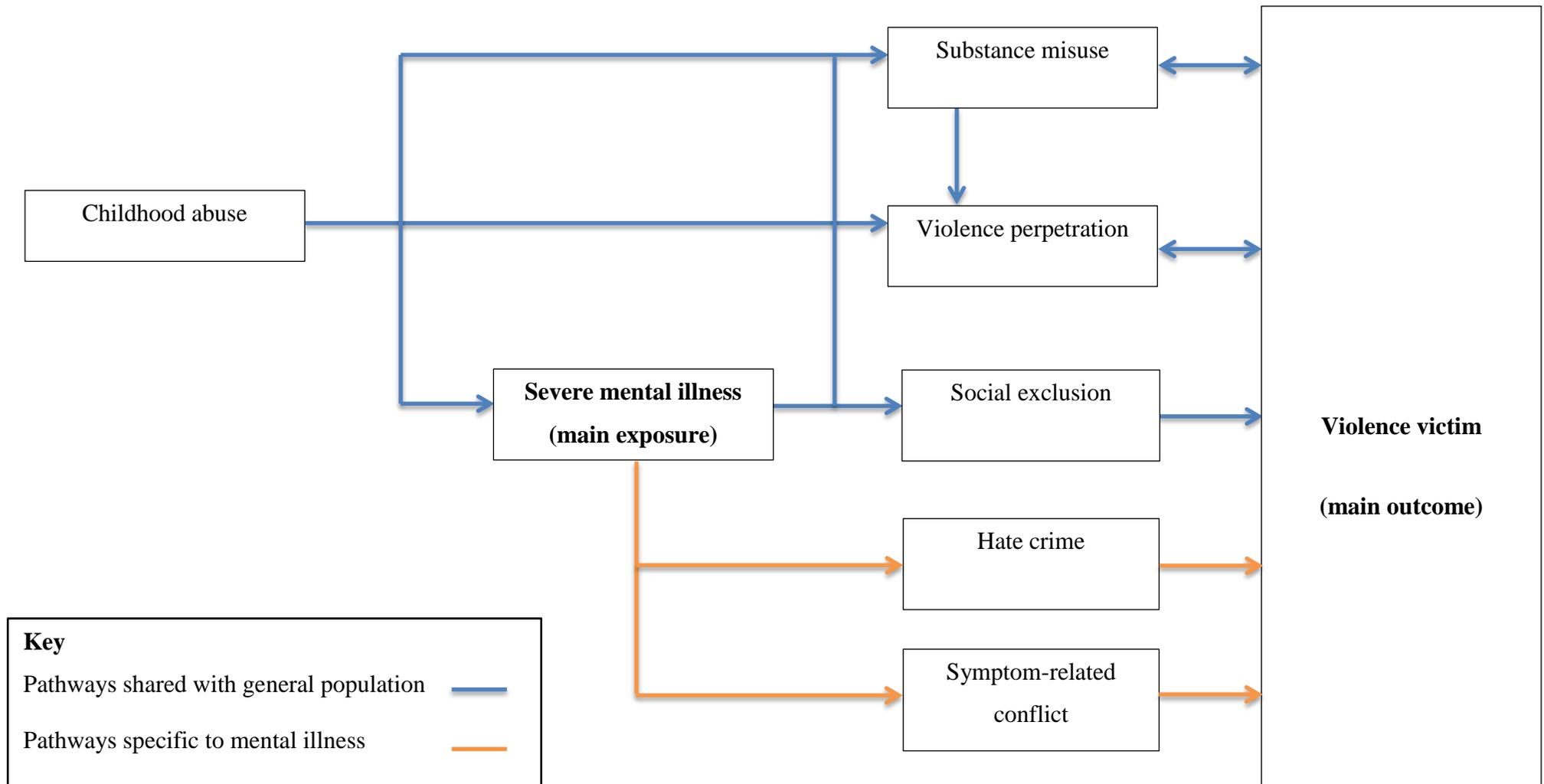


Figure 1-5 Causal pathways for victimisation among people with SMI



1.7 Summary

In summary, this study aims to investigate the extent and correlates of recent violent and non-violent crime against adults with pre-existing mental illness compared with the general population. This problem is important from public health, social justice and human rights perspectives. The main method used in this study was the crime victimisation survey, since this enabled detailed measures of victimisation and comparisons with the general population. An initial conceptual framework for understanding victimisation risk among people with mental illness was presented, based on the public health ‘ecological model’ of the World Health Organization, and on epidemiological findings and concepts from social and forensic psychiatry. This model will be developed in light of findings of the systematic review and the studies reported in this thesis.

The next chapter presents a systematic review on violence against people with SMI. Chapters 3-4 focus on violence against people with disability (due to mental or physical illness) using secondary analyses of the British Crime Survey. Chapters 5-7 focus on crime against patients with SMI, using findings from the new patient survey.

Chapter 2. Prevalence and risk of violence against adults with severe mental illness: a systematic review update and meta-analysis

2.1 Abstract

Background: People with severe mental illness (SMI) are believed to be at high risk of being victims of violence, but past quantitative syntheses of studies on this issue had methodological limitations or only focused on domestic violence.

Objectives: To synthesise the evidence on prevalence, relative odds and risk factors for recent victimisation among adults with SMI, using meta-analyses where appropriate.

Methods: Studies published in 2010-2013 were identified through a literature search of Medline, Psychinfo and Embase; and studies published in 2000-2010 were identified through existing systematic reviews which met relevant quality standards. Studies were included if (a) they were RCTs, cohort, case-control or cross-sectional studies (b) they measured prevalence, relative odds or risk factors for being a victim of physical or sexual violence by any perpetrator within the past three years (c) they measured these outcomes among people with psychotic disorders or people in contact with psychiatric services. Study quality was assessed using six objective criteria. Data were synthesised using meta-analysis where appropriate.

Results: The review included 26 studies with a total of 12,212 participants. 25 studies provided data suitable for meta-analyses of prevalence. The pooled prevalence of physical violence was 19% (CI 15%-24%; $I^2=97\%$) in men and women, and the pooled prevalence of sexual violence was 9% (CI 4%-20%; $I^2=96\%$) in women and 3%, (CI 1%-9%; $I^2=82\%$) in men. Seven studies, mostly low quality, provided data for meta-analyses of relative odds among those with vs. without SMI. The pooled crude OR for physical violence was 4.9 (CI 2.3-10.3, $I^2=94\%$), and for sexual violence it was 7.7 (CI 3.4-17.3, $I^2=88\%$). There was little evidence on violence sub-grouped by perpetrator (community vs. domestic violence). Seventeen studies provided data for meta-analysis of risk factors among people with SMI. Victimisation was strongly associated with homelessness, substance misuse and violence perpetration, but it was not associated with demographics or diagnosis. Heterogeneity was substantial for all pooled estimates, but no sources of heterogeneity were identified.

Interpretation: People with SMI are at substantial risk of physical and sexual violence compared to those without mental illness. There are gaps in the literature on community and domestic violence, and methodological weaknesses in comparative studies.

2.2 Introduction

This chapter presents the findings of a systematic review on the prevalence, relative odds and risk factors for violent victimisation among people with SMI. The focus of the review is on people with SMI (i.e. those with psychotic disorders, and those with an illness severe enough to warrant ongoing care from secondary mental health services) rather than those with common mental disorders (e.g. depression or anxiety of a severity that warrants treatment in primary care) or those with self-reported disability due to mental health problems (e.g. as measured in population-based surveys, usually with a focus other than mental health). Whilst all of these populations- those with SMI, CMD and self-reported disability- may be at increased risk of violence, the extent of excess risk and the key risk factors are likely to differ across these populations. The majority of those with SMI access care from secondary mental healthcare services, so epidemiological findings on victimisation in this population can be used to develop interventions in psychiatric service settings.

[41, 85, 86][19, 29] This review aims to synthesise findings from studies published in peer-reviewed journals on the prevalence, relative risk and risk factors for violence by any perpetrator against people with SMI. There is one published systematic review (SR) on prevalence and risk factors for violence against people with SMI, but this was published in 2007, and so requires updating. [14] The other more recent reviews on victimisation and mental illness have a different but overlapping population of interest and / or definition of violence. [11, 87, 88] A review by Hughes et al, published in 2013 and reporting on literature up to 2010, examined violence by any perpetrator against people with disability. The review reported findings on prevalence and relative risk of violence, stratified by cause of disability (physical versus mental illness). Although it included studies on violence against people with SMI, it did not report findings separately for this population. [11] There are two further relevant recent SRs, by Trevillion et al and Oram et al, published in 2013 and examining literature up to 2011. These examined domestic violence only (i.e. violence perpetrated by partners or family members) against people with a diagnosed mental disorder, [88] or against those under the care of psychiatric services. [87] Again, these reviews included studies on domestic

violence against people with SMI but did not report findings separately for this group.

Therefore, there is no up to date synthesis of studies on violence (by any perpetrator) against people with SMI, and this review aims to fill this gap. The more specific aims of the review were to synthesise the evidence on the prevalence, relative risk and risk factors for recent violence against men and women with SMI, using meta-analysis where appropriate.

It is worth noting that the published systematic reviews summarised above adequately searched the primary literature on violence against people with SMI up to 2010. The Maniglio review (which included studies published up to 2007) focused exclusively on those with SMI. The other reviews covered a broader population which included those with SMI (although they did not report separately on this group). The latter reviews used broad search terms that were likely to capture the SMI population; for example, the Hughes review (which included studies published up to 2010) used the search terms ‘mental or psychiatric or emotional’ in combination with ‘disorder or ill or illness’ [11]. In the review reported here, studies published up to 2010 were identified from the four published systematic reviews- and studies published from 2010-2013 were identified by a primary search of the literature. This was supplemented by screening the reference lists of all included studies.

The next section summarises the methods and findings of the four published systematic reviews. This is followed by this review’s methods, results and conclusions.

2.2.1 Published systematic reviews

The four recent published systematic reviews on violence against people with mental illness are summarised below, and their strengths and limitations are discussed. Table 2-2 summarises the methods of the published reviews and the review reported in this chapter, and table 2-12 summarises the findings of these reviews.

2.2.1.1 Maniglio review [14]

A systematic review by Maniglio et al investigated the prevalence and risk factors for recent criminal (including violent) victimisation among people with SMI. [14] SMI was defined as having a diagnosis of schizophrenia, other psychotic disorder, bipolar disorder or major depression. The review excluded studies which solely focused on domestic or sexual violence. The review identified nine studies (published in 1966-2007) which varied widely in design, setting and violence measure. [14] Prevalence of recent victimisation ranged from 4% to 35%. Victimization was associated with substance misuse, violence perpetration, homelessness and symptom severity.

The review had sound methods, searching four large databases and manually searching the reference lists from retrieved papers. However, only free-text search terms were used, and the review failed to identify a number of relevant studies. [89] The author did not systematically assess sources of heterogeneity in the prevalence estimates.

2.2.1.2 Hughes review [11]

A recent systematic review and meta-analysis by Hughes et al synthesised findings from 26 studies on the prevalence and relative risk of violence against adults with any physical or mental disabilities (published in 1990-2010). [11] The review included studies on physical and / or sexual violence by any perpetrator. It identified 14 studies on violence against adults with mental illness, three of which included a comparison group. In this group, the prevalence of past-year violence victimisation ranged from 8% to 63%, with a pooled prevalence of 24% (CI 18%-31%). The odds ratios ranged from two-fold to twelvefold, with a pooled crude odds ratio of 3.9 (CI 0.91–16.4). The authors explored sources of heterogeneity across all studies, and found that prevalence and relative risk were higher among those with mental illness vs. those with other disability types, and among studies with a clinical vs. a general population setting.

This was a good quality review, written by experts in the field and published in a high quality journal. However, most of the included studies focused on common

mental disorders rather than SMI; and did not report separately in the latter. . Risk factors for victimisation were not explored.

2.2.1.3 *Trevillion and Oram reviews [87, 88]*

Two further linked comprehensive systematic reviews focused exclusively on domestic violence (i.e. violence perpetrated by partners or family members) against people with mental illness. The review by Trevillion et al included 41 studies that used a validated diagnostic measure (published from database inception up to 2011), of which 18 were on past-year DV. [88] Most studies focused on people with common mental disorders rather than SMI. The review identified one study on recent domestic violence (DV) against people with non-affective psychosis (where prevalence of past year partner violence was 44%). [90]. The review by Oram et al included studies of patients under the care of psychiatric services (published from database inception up to 2011). It identified ten studies on past-year DV. [87] In high-quality studies the estimate of past-year DV ranged from 11-18%, with low quality studies providing higher estimates of 30% to 90%. There was limited evidence on family violence and violence against men. The review did not identify any studies that investigated domestic violence against psychiatric patients compared with the general population.

These reviews had a very thorough search strategy, and were reported in accordance with PRISMA guidelines, but they focused exclusively on domestic violence.

2.2.2 Summary and limitations of existing reviews

Altogether, these findings suggest that around a fifth to a third of patients with severe mental illness have been a victim of recent violence. There was wide variation in prevalence and odds estimates, but no systematic investigation of the sources of this heterogeneity. It is important to establish whether heterogeneity is due to methodological differences between studies, or to real differences in violence prevalence and risk. One of the reviews explored risk factors, and suggested substance misuse and violence perpetration were key risk factors, but did not synthesise this evidence quantitatively. [14]

There was limited assessment of prevalence and risk by gender. In the general population, there is a clear gender difference in the risk of victimisation, with men being at higher risk of physical and community violence, and women being at higher risk of domestic and sexual violence. This is reflected in gender-based interventions, particularly for domestic violence. [91] There is some evidence that there is a narrower gender gap in the SMI population, in that men and women may be at equally high risk of being victims of violence, [68] but this has not been systematically investigated.

The reviews either investigated any violence (regardless of perpetrator) or focused exclusively on domestic violence. It is therefore difficult to ascertain the relative extent of domestic violence (perpetrated by partners or family members) and community violence (perpetrated by strangers or acquaintances). This is an important omission, since the risk pathways and appropriate interventions for domestic and community violence are likely to differ. [16]

Therefore, the existing reviews provided limited evidence on the prevalence and risk of different types of violence in men and women, and there was no quantitative synthesis of risk factors.

2.2.3 Systematic review update: aims and objectives

This study aimed to update and extend existing systematic reviews on the prevalence and risk of recent violence against men and women with severe mental illness. The objectives of this review were:

- (1) To carry out a systematic review of the literature for the period 2010-2013, in order to update existing published reviews
- (2) To use data from studies published in the period 2000-2013- identified from (1) above and from published systematic reviews- to:
 - a. Synthesise the evidence on prevalence of recent violence against men and women with SMI, using meta-analysis where appropriate
 - b. Where data allows, to examine the prevalence and relative odds of subgroups of violence by type (physical vs. sexual) and perpetrator (domestic vs. community) in men and women

- c. Synthesise the evidence on the relative odds of victimisation among people with vs. those without SMI, using meta-analysis where appropriate
- d. Explore sources of heterogeneity in prevalence and odds ratio (OR) estimates, by variables related to study methodology, study quality and risk factors for victimisation
- e. Synthesise the evidence on risk factors for violence victimisation among people with SMI, using meta-analysis where appropriate

2.3 Methods

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guidelines were followed in the conduct and reporting of the systematic review and STROBE (Strengthening the Reporting of Observational studies in Epidemiology) guidelines were followed in assessing the quality of included studies. [92, 93]

2.3.1 Definitions of SMI and violence

Severe mental illness (SMI) was defined as either (a) having a psychotic disorder (i.e. schizophrenia, schizoaffective disorder, bipolar disorder or depressive disorder with psychotic symptoms); measured using a validated diagnostic instrument or from clinical records; or (b) being under the care of secondary mental health services. Violence was defined as physical or sexual violence by any perpetrator; including violence perpetrated by partners / family members (domestic violence), or strangers / acquaintances (community). Recent violence was defined as violence occurring within the past three years. This time period was chosen to reflect the methods used in the existing literature (which tended to measure violence for varied time periods, ranging from 1 month to 3 years). However, a subgroup analysis was carried out, limited to studies measuring violence over the preceding 12 months.

2.3.2 Study inclusion criteria

The following criteria were used to select studies (from both the updated literature search for the period 2010-2013 and from the published systematic reviews):

For prevalence estimates, study inclusion criteria were: (1) Randomised controlled trial (RCT), cohort, case-control or cross-sectional study published in a peer-

reviewed journal (2) reported on prevalence of violence victimisation among people with SMI (3) reported on experiences of people aged over 18 (4) written in English (5) published in the period 1/1/2000-31/12/2013. For estimates of odds, additional inclusion criteria were applied namely: the study reported on relative risk or odds of being a victim of violence among adults with vs. those without SMI. Studies were excluded if (a) they reported on any criminal victimisation without separately reporting on violence (b) included people with any mental illness, without separately reporting on people with SMI (c) did not specify whether violence was experienced in childhood (aged<16) or adulthood (age>16) (d) focused on selected populations (e.g. prisoners, homeless people, immigrants, forensic population, domestic violence shelter attendees, women with perinatal psychiatric disorders) (e) would result in duplication of included data (for studies with multiple reports the study with the largest sample size was included). This search strategy was supplemented by screening reference lists of retrieved studies and recent related systematic reviews.

2.3.3 Literature search and study selection

Studies published between 1/2/ 2000 and 31/12/ 2009 were identified via the four published systematic reviews by Maniglio, Hughes, Trevillion and Oram. [7, 11, 14, 88].

Studies published between 1/1/2010 and 31/12/2013 were identified by conducting a literature search. Medline, Embase and Psycinfo were searched for primary research studies which reported on prevalence or relative odds/risk of violence against people with SMI in adulthood. A search strategy was developed and adapted for each database, including free text and index terms (see Figure 2-1). Search terms were developed for the two categories of '*severe mental illness*' ((mental* or psychiatric*) adj2 (ill or illness* or disorder* or patient*)) or (schiz* or bipolar or psychos* or psychot*) and '*violence victimisation*' ((viol* or assault* or abus* or aggressi* or maltreat* or rape*) and (victim* or against)).

References were managed using Endnote. I screened the titles / abstracts of all references for potential relevance, and excluded studies which were clearly irrelevant or which clearly met one or more exclusion criteria. The remaining

references were assessed for eligibility for inclusion using full-text screening. The reason for study exclusion was recorded, using a hierarchical list of inclusion / exclusion criteria (see Figure 2-2). I screened reference lists of included studies.

Figure 2-1 Search terms for Medline

1. ((mental* or psychiatric*) adj2 (ill or illness* or disorder* or patient*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
2. (schiz* or bipolar or psychos* or psychot*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
3. exp Bipolar Disorder/ or exp Psychotic Disorders/ or exp Schizophrenia/ or exp Depressive Disorder, Major/
4. exp Violence/ or exp Domestic Violence/ or exp Sex Offenses/
5. (victim* or against).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
6. exp Crime Victims/
7. (viol* or assault* or abus* or agressi* or maltreat* or rape* or homicide).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
8. 1 or 2 or 3
9. 4 or 7
10. 5 or 6
11. 8 and 9 and 10
12. limit 11 to (english language and yr="1990 -Current")
13. (prevalence or odds or risk or rate* or incidence or proportion or extent or level*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
14. (survey or cross-sectional or cohort or longitudinal or case-control or compar* or control* or associat*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
15. 13 or 14
16. 12 and 15

2.3.4 Data extraction

A standard electronic form was used to extract data on all included studies, whether identified from the updated literature search or the published systematic reviews. This included data on study design and methods, population, outcomes (prevalence, relative odds, risk factors) and study quality (see Table 2-3, Table 2-4 and Table 2-7 for details).

2.3.5 Study quality

Study quality was assessed based on international standards, with an emphasis on standards which assess bias and confounding in observational studies. [92] The quality criteria used in the Hughes et al systematic reviewer were adapted. The Hughes criteria were as follows:

- A. For all studies: sample size, bias (no details given), violence measure, disability measure
- B. For prevalence studies: prevalence confidence intervals provided, sample socio-demographics described
- C. For risk studies: confounders controlled, odds ratio confidence intervals provided, suitable controls, subjects described

The criteria were adapted as follows:

1. The scoring system was changed from binary (criteria met / not met) to a three-point system (criteria fully met / partially met / not met).
2. The criteria on sample size, violence measure, disability measure and control for confounders were retained.
3. The bias criterion was replaced by the criterion on the study sample being representative of the population of interest.
4. The criteria on whether confidence intervals were provided were omitted, as these were calculated in this review.
5. The criteria on subjects being described were omitted, and replaced by the criterion on whether the age and sex profile of SMI and non-SMI participants were similar

The quality criteria used included measures of bias at the study level and the outcome level. Six quality criteria were used for prevalence studies, and a further six criteria for comparative studies, with a maximum score of 12 for each. The criteria and scoring guidelines are detailed in Table 2-1. Studies which provided both

prevalence and comparative data were assigned two separate quality scores. Two independent researchers (H Khalifeh & S Oram) rated study quality, and differences were resolved by discussion and reaching a consensus. Study quality was used in the analysis by stratifying on quality measures in subgroup meta-analyses. In addition to using the total quality score, individual quality criteria assessing bias and confounding were used, since the use of total scores has been criticised as lacking validity and objectivity. [94]

Table 2-1 Quality criteria and scoring guidelines

Study type	Criterion	Scoring guideline		
		Score=0	Score=1	Score=2
Prevalence studies	Sampling method appropriate	NR	Not random	Random
	Sample size appropriate	<300	300-600	>600
	Study sample representative of population of interest	Neither criteria under (2)	One of criteria under (2)	Multicentre & refusers similar to participants
	Response rate adequate	<50% or NR	50%-70%	>70%
	Suitable / standardised measure of violence	Neither criteria under (2)	One of criteria under (2)	Semi-structured & specific
	Suitable measure of SMI	Self-report or NR	Records	Diagnostic interview
Comparative studies	Sampling method appropriate	Neither SMI nor controls random	SMI or controls random	Both SMI & controls random
	Sample size appropriate	SMI & control samples <300	SMI or controls 300-600	SMI & controls >600
	Response rate adequate	SMI & controls samples <50% or NR	At least SMI or control sample >50%	Both SMI & control samples >70%
	Suitable controls selected (A)	Neither criteria under (2)	One of criteria under (2)	Study setting & source population same in SMI and control samples
	Suitable controls selected (B)	Neither criteria under (2)	One of criteria under (2)	Age & sex similar in SMI and control samples
	Confounders accounted for in design/analysis	No	Adjustment / matching for a limited no. of confounders	Adjustment / matching for key confounders

NR=not reported, SMI=severe mental illness

2.3.6 Summary measures

The main summary measures were:

- Prevalence of victimisation
- Crude odds ratio of victimisation in those with vs. without SMI
- Crude odds ratio of victimisation in those with vs. without a given risk factor among people with SMI

Risk factors were investigated for any physical or sexual violence or physical violence only (no studies reported on risk factors for sexual violence only). Risk factors were grouped into the following domains:

- Demographic
- Social
- Clinical
- Substance misuse
- Violence perpetration
- Childhood abuse

This was based on the World Health Organization's violence conceptual framework, [16] and on past research on key risk factors for violence in the general population and among people with SMI [14, 75, 86]. For each study, information was extracted about risk factors reported in univariate and multivariate analyses, including: (a) total number / number victimised among those with and without a given risk factor (b) reported crude and adjusted ORs (with 95% confidence intervals / standard errors) (c) risk factor domains included in the multivariate analyses.

2.3.7 Statistical analysis

Victimisation prevalence was estimated using raw data. Exact binomial confidence intervals were calculated using the Clopper-Pearson method (a standard method for estimating confidence intervals based on proportions, using the binomial distribution). [95]

Crude odds ratios (for victimisation in people with vs. without SMI; and for victimisation for people with vs. without a given risk factor) were estimated using raw data where possible. Confidence intervals were calculated using Woolf's formula (a standard method for calculating confidence intervals based on $\ln(\text{OR})$). [96] Where raw data was not available, the published ORs and their confidence intervals (CIs) / standard errors (SEs) were used. For meta-analyses of adjusted ORs, published ORs from multivariate analyses were used. Where CIs/SEs were not

reported but p-values were given, the SEs were calculated by converting p-values to z values, and then calculating the standard errors. [97]

Meta-analyses were conducted using STATA version 12. Pooled prevalence and pooled ORs (with 95% CI) were estimated using a random effects model. A fixed effects model was not used, since this model is based on the assumption that the true effect (here victimisation prevalence or risk) is the same in each study, and that the only variation in estimates between studies is due to sampling variation. [98] This is unlikely to be the case, given the wide heterogeneity in settings, populations and measures of SMI and violence. Instead, a random-effects model was used, which makes the assumption that the variation in effect estimates between studies is not only due to sampling variation, but also because the true effect varies between studies. [98] The random-effects model estimates a mean effect, around which it is assumed that the true study effects vary. The Stata metan command was used, which employs the DerSimonian and Laird method. [99] This method estimates the between-studies variance, and uses this to modify the weights used to calculate the summary estimate. [97]

Meta-analyses were only conducted where three or more studies reported a given estimate. Forest plots were used to graphically display study and pooled estimates, with 95% CIs. Based on past reviews, it was anticipated that the meta-analyses would show a high degree of heterogeneity. [11] In this review, meta-analyses were carried out and presented even where heterogeneity was high. This was done in order to describe the extent of heterogeneity and to explore its potential sources. It is recognised that where heterogeneity is high, the pooled estimate is not a valid summary of individual study findings, and that the individual study estimates need to be inspected.

Pre-planned subgroup analyses included analyses of violence stratified by type (physical vs. sexual) and by perpetrator (domestic vs. community) where data allowed.

Risk of publication bias was assessed using funnel plots and Peter's test for odds ratio estimates. [100]

2.3.8 Heterogeneity analyses

Heterogeneity for prevalence / risk estimates was tested using the I^2 statistic (reported with 95% CI). This estimates the proportion of variation across studies due to heterogeneity between study effect estimates rather than chance. [97] Factors that could explain heterogeneity in the estimates of victimisation prevalence / risk were grouped into the following domains: (a) study design and setting (b) study population and SMI definition / measures (c) violence definition / measures (d) study quality (see Table 2-6 for details). The effect of these factors was assessed using random-effects meta-analyses stratified by the relevant variable, and by inspection of related forest plots. Meta-regression was not used, since none of the factors explored in the stratified meta-analyses accounted for the heterogeneity (therefore univariate meta-regression analyses were not warranted), and there were too few studies to allow for multivariate meta-regression analyses.

Table 2-2 Past and current systematic reviews on SMI and victimisation: summary of design and methods

Author	Primary review question	Population definition	Violence definition	Key exclusion criteria	Search method	Years covered
Maniglio	Recent crime victimisation among people with SMI (prevalence, risk factors)	SMI: diagnosis of schizophrenia, other psychotic disorder, bipolar disorder, major depression	Violence by any perpetrator	Selected populations (homeless / women), specific violence types (partner violence, sexual assault),	Database search (Medline, ScienceDirect, ERIC, AMED). Reference list screen.	1966-2007
Hughes	Past-year violence against people with physical or mental disability (prevalence, risk)	Any disability, due to physical or mental illness	Physical or sexual violence by any perpetrator	Selected populations (homeless / in prison), participants < 18 yrs, response rate < 50%, historical controls for risk studies	Database search (12 health & social databases). Reference list screen. Hand search of non-indexed journals. Web-based search.	1990-2010
Oram	Adulthood & past-year domestic violence against psychiatric patients	People under the care of secondary or tertiary psychiatric services	Any violence by partner or family member		Database search (18 databases), citation tracking, hand searching, expert recommendation	Database inception-2011
Trevillion	Adulthood & past-year domestic violence against people with diagnosed mental disorders	Mental illness identified using validated diagnostic measure	Any violence by partner or family member	Diagnosis made using screening instrument	Database search (18 databases), citation tracking, hand searching, expert recommendation	Database inception-2011
This review	Three-year violence against people with SMI (prevalence, risk, risk factors)	SMI: diagnosis of schizophrenia, bipolar disorder, other psychotic disorder; under care of psychiatric services	Physical or sexual violence by any perpetrator	Selected populations (e.g. homeless, forensic)	(1) For 2010-2013: Database search (Medline, Embase, Psychinfo). Reference list screen. (2) For 2000-2010: Eligible studies included in reviews above, reference list screen of these studies	2000-2013

2.4 Results

For odds ratios reported in the text, the following qualitative descriptions were used: weak (OR 1.2-1.5), moderate (OR 1.6-2.5) and strong (OR 2.6-9.9). [11]

2.4.1 Included studies

Using findings from the existing systematic reviews, as well as the updated review which I conducted, a total of twenty six studies were included, with 12,212 participants with SMI. Figure 2-2 shows the study selection flowchart. The literature search for the period Jan/2010-Dec/2013 retrieved a total of 1213 studies. Seven studies were included from this literature search, after excluding 1138 studies following title and abstract screening and 68 studies following full-text screening. A further sixteen studies from recent published systematic reviews and three studies from reference screening were included.

Details of all included studies are given in Table 2-3. Quality assessments are detailed in Table 2-5 and Table 2-8. The findings on prevalence, relative risk and risk factors are presented in turn.

Figure 2-2 Flowchart of included studies

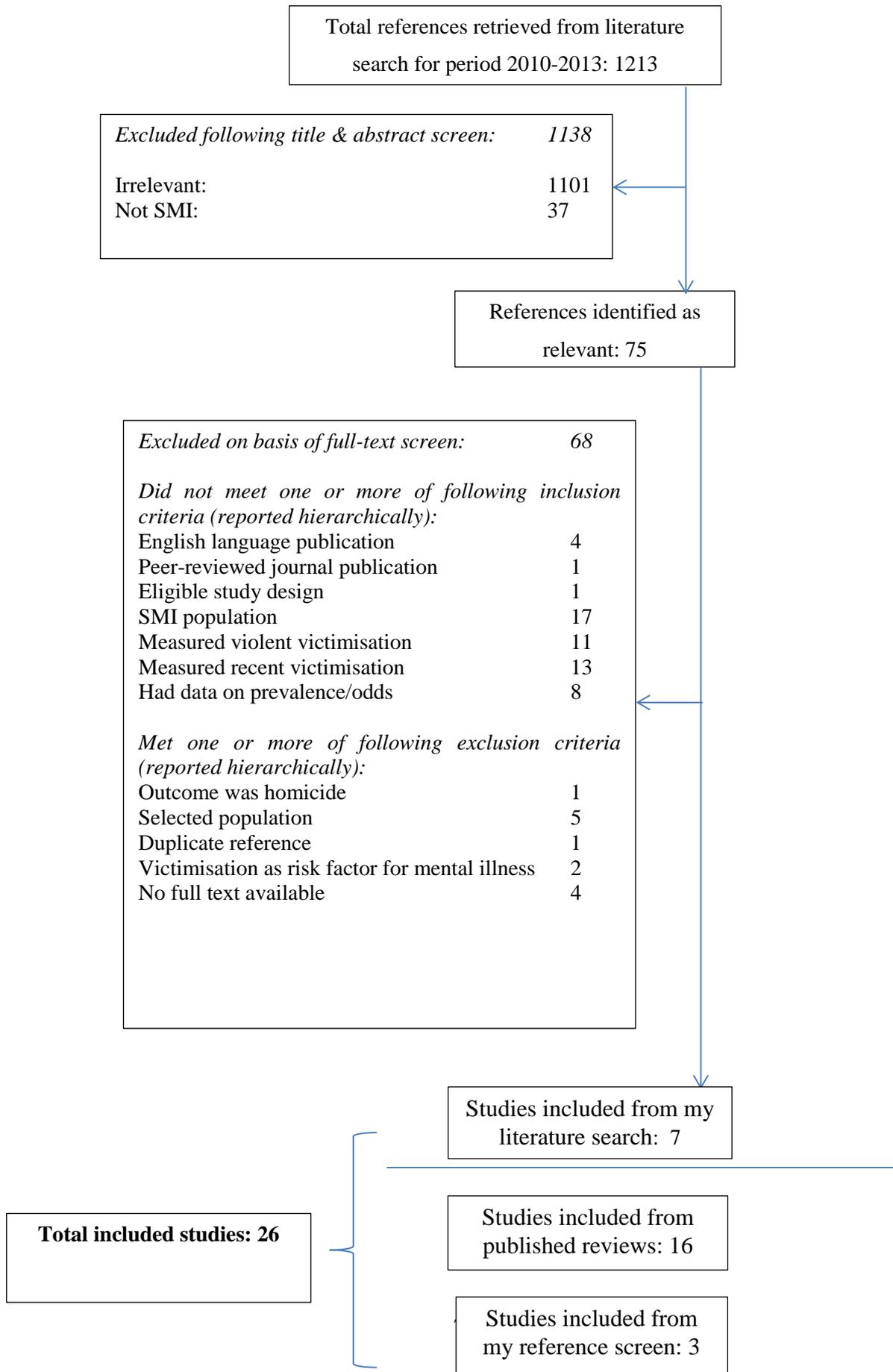


Table 2-3 Details of all included studies

Author	Year	Design	Country	Setting	Inclusion criteria	SMI N	Gender	Mean age (sd/range)	Time	Violence type	Prevalence (95% CI)	Quality score (Max=12) ¹
Bengtsson-Tops [101]	2012	CS	Sweden	OP (multicentre)	Psychosis, ongoing service contact, living in community	174	M&F	46	12	Any Physical Sexual	33.3 (26.4-40.9) 19.5 (13.9-26.2) 14.9 (10.0-12.1)	8
Bengtsson-Tops [102]	2005	CS	Sweden	OP&IP (regional)	Contact with services; excluded acute psychosis, LD	1382	F	39 (13)	12	Physical Sexual	5.9 (4.7-7.2) 3.2 (2.3-4.3)	7
Brekke [103]	2001	CS	USA	OP (local)	Schizophrenia	172	M&F	33 (7)	36	Any Physical Sexual	34.3 (27.2-41.9) 16.3 (11.1-22.7) 0.6 (0-3.1)	4
Chang [104]	2011	CS	USA	OP&IP (local)	SZ, bipolar, PTSD, anxiety	428	M&F	39	12	Physical (IPV) Sexual (IPV)	10.3 (7.6-13.6) 5.6 (3.6-8.2)	6
Chapple [105]	2004	CS	Australia	OP&IP (multicentre)	Psychosis	962	M&F	Range 18-64	12	Physical	17.9 (15.5-20.4)	6
Dean [106]	2007	Cohort	UK	OP&IP (multicentre)	Psychosis, 2+ past admission; excluded primary substance misuse, brain disorder	632	M&F	38 (11)	24	Physical	23.1 (19.9-26.6)	7
Fitzgerald [107]	2004	CS	Australia	OP&IP (regional)	Schizophrenia spectrum	348	M&F	34 (10)	1	Any	4.3 (2.4-7.0)	5
Fortugno(a) [108]	2013	CS	UK	IP (multicentre)	Schizophrenia spectrum	357	M&F	36	12	Physical	37.8 (32.8-43.1)	5
Fortugno(b) [108]	2013	CS	Europe (6 countries)	IP (multinational)	Schizophrenia spectrum	543	M&F	40	12	Physical	28.0 (24.3-32.0)	5
Goodman [109]	2001	CS	USA	OP&IP (multicentre)	SZ, SZA, bipolar, major depression	782	M&F	43 (10)	12	Any Physical Sexual	35.0 (31.7-38.5) 30.3 (27.1-33.7) 12.7 (10.4-15.2)	7
Havassy [110]	2013	CS	USA	IP (local)	Service contact, no or public insurance, HIV -ve	419	M&F	Range 18-50	1	Any	34.4 (29.8-39.1)	7

Author	Year	Design	Country	Setting	Inclusion criteria	SMI N	Gender	Mean age (sd/range)	Time	Violence type	Prevalence (95% CI)	Quality score (Max=12) ¹
Hiday [10]	2001	RCT	USA	IP (multicentre)	Psychosis; ill>=1 yr, treatment in past year, functionally impaired, OPC	331	M&F	41	4	Any	8.2 (5.4-11.6)	5
Hodgins [32]	2007	CS	UK	IP (local)	SZ, SZA, bipolar, major depression, drug/alcohol induced psychosis	205	M&F	38 (11)	6	Any	51.2 (44.2-58.2)	6
Honkonen [111]	2004	Cohort	Finland	IP (multicentre)	SZ (not schizoprenifrom)	670	M&F	Range 15-64	36	Any	5.5 (3.9-7.5)	6
Hsu [21]	2009	CS	Taiwan	OP&IP (local)	SZ, SZA, 'major affective'	155	M&F	37 (12)	12	Any	7.1 (3.6-12.3)	7
Katsikidou [112]	2013	CS	Greece	OP (local)	SZ, SZA, bipolar (DSM-IV), past IP treatment; exc. dementia, organic, submis primary, acute relapse	150	M&F	43 (12)	12	Physical Sexual	28.7 (21.6-36.6) 16.4 (8.8-27.0)	3
Lin [113]	2009	National database	Taiwan	Gen pop (national)	'Psychosis'	NA	M&F	NR	NA	Sexual	13.90 per 10,000	1
McPherson [114]	2007	Cohort	USA	OP&IP (local)	SZ, SZA, bipolar, major depn; caring for child aged 4-16	324	F	36 (5)	12	Any (IPV)	22.2 (17.8-27.1)	6
Morgan [115]	2010	CS	UK	OP (multicentre)	CMHT care	71	F	50 (14)	12	Physical (IPV)	15.5 (8.0-26.0)	7
Schomerus [33]	2008	CS	Europe (UK, France, Germany)	OP&IP (multinational)	SZ; no hospital past yr, not homeless, not planning move	1204	M&F	41 (11)	30	Any	10.0 (8.4-11.9)	8
Silver [35]	2011	Cohort	USA	IP (multicentre)	Recently discharged, civil admission	826	M&F	30 (6)	2.5	Any	19.4 (16.7-22.2)	7
Silver [116]	2005	Cohort	New Zealand	Birth cohort (local)	Schizophrenia spectrum	38	M&F	21 (0)	12	Physical Sexual	57.9 (40.8-73.7) 13.2 (4.4-28.1)	7

Author	Year	Design	Country	Setting	Inclusion criteria	SMI N	Gender	Mean age (sd/range)	Time	Violence type	Prevalence (95% CI)	Quality score (Max=12) ¹
Silver [22]	2002	CS	USA	IP (local)	SZ/bipolar/depression/'psychosis'/sub mis/PD	270	M&F	Range 18-40	2.5	Any	15.2 (11.1-20.0)	5
Sturup [23]	2011	CS	Sweden	IP (local)	Recently discharged, social sec no.	390	M&F	37 (12)	12	Any	21.3 (17.3-25.7)	8
Teplin [15]	2005	CS	USA	OP&IP (local)	Psychosis/major affective disorder, ever hospitalised, medication past 2 yrs; excluded 1st contact, in crisis	936	M&F	42 (11)	12	Any Physical Sexual	25.3 (22.6-28.2) 19.0 (16.6-21.7) 2.6 (1.6-3.8)	10
White [117]	2006	CS	USA	IP (local)	Contact with services	308	M&F	38	6	Any	25.6 (20.9-30.9)	3

1. In this table the 'prevalence study' quality score is given, except for Lin et al, where 'comparative study' quality score is given. All quality scores are detailed in Table 2-4 and Table 2-7

Key: T=violence timeframe, CS=cross sectional, OP=outpatients, IP=inpatients, M=male, F=female, IPV=intimate partner violence, CI=confidence interval, NR=not reported, NA=not applicable, SZ=schizophrenia, SZA=schizoaffective, sub mis=substance misuse, QOL=quality of life

2.4.2 Prevalence studies

2.4.2.1 Characteristics of prevalence studies

Twenty five studies provided estimates on the prevalence of any recent physical or sexual violence victimisation, four (16%) of which were of high quality (score \geq 8/12) (see Table 2-5). The study characteristics are summarised in Table 2-4. Twenty studies measured physical or sexual violence and five measured physical violence only. The studies included a total of 12,077 participants, 2329 (19%) of whom reported being a victim of any violence.

The studies were highly heterogeneous in terms of settings, populations and violence measures. Ten studies were based in the USA and 11 in Europe (including 4 in the UK). The majority (n=19) were cross-sectional studies, and most (n=24) recruited patients in contact with psychiatric services. All but three studies included men and women. The proportion of patients with schizophreniform disorders was reported in 18 studies, and ranged from 18-100% (mean 73%). Most (n=22) reported on violence by any perpetrator, but three focused on intimate partner violence.

Table 2-4 Characteristics of prevalence studies

Characteristics	Number of studies (Total N=25)
Design	
Cross-sectional	19
Cohort	5
RCT	1
Country	
USA	10
UK	4
Rest of Europe	7
Australia/New Zealand	3
Taiwan	1
Setting	
Clinical-inpatients	10
Clinical-Inpatient and outpatients	10
Clinical-outpatients	4
General population	1
Gender	
M&F	22
Women only	3
Violence timeframe	
1-6 months	7
12 months	14
24-36 months	4
Violence type	
Physical or sexual (not disaggregated by type)	13
Physical or sexual (disaggregated by type)	7
Physical violence only	5
Violence perpetrator	
Any (not disaggregated by perpetrator)	20
Any (disaggregated for community & domestic violence)	2
Intimate partner violence	3

Table 2-5 Quality assessment for prevalence studies

Author	Year	Sampling method	Sample size	Representativeness: Setting	Representatives: Non-participant characteristics	Response rate	Violence measure	Diagnostic measure	
Score for each quality criterion (0-2)									Total quality score (0-12)
Bengtsson-Tops	2005	Case series	138	Regional	NR	0.79	Study-specific (3 Qs)	Not reported	
		1	2		1	2	1	0	7
Bengtsson-Tops	2012	Random	174	Multicentre (1 city & 3 towns)	NR	0.75	Composite Abuse Scale (semi-structured)	Records	
		2	0		1	2	0.02	1	8
Brekke	2001	NR	172	Local (3 clinics in 1 city)	NR	NR	Study-specific	Interview (SADS) + Records	
		0	0		1	0	1	2	4
Chang	2011	Consecutive	428	Local (1 city)	Same age, gender, race	0.82	Abuse Assessment Screen (1Q) & study Q on sex assault (1Q)	Self-reported	
		1	1		1	2	1	0	6
Chapple	2004	NR	962	Multicentre (4 centres)	NA (case finding)	NR	Study-specific (1Q)	Interview: CIDI & PSQ, SCAN in subsample	
		0	2		1	0	1	2	6
Dean	2007	NR	632	Multicentre (2 cities)	Same demographics, clinical	0.71	Lancashire QOL (1Q)	Records	
		0	2		2	1	1	1	7
Fitzgerald	2004	Case series/random	348	Regional	NR	NR	Lehman QOL (1Q)	Records	
		1	1		1	0	1	1	5
Author	Year	Sampling method	Sample size	Representativeness: Setting	Representatives: Non-participant characteristics	Response rate	Violence measure	Diagnostic measure	
Fortugno(a)	2013	Case series	357	Multicentre (22 hospitals)	NR	0.5	Manchester QOL (1 Q, NS)	Records	
		1	1		1	1	0	1	5
Fortugno(b)	2013	Case series	543	Multinational (6 countries)	NR	0.5	Manchester QOL (1 Q, NS)	Records	
		1	1		1	1	0	1	5

Author	Year	Sampling method	Sample size	Representativeness: Setting	Representatives: Non-participant characteristics	Response rate	Violence measure	Diagnostic measure	
Score for each quality criterion (0-2)									Quality score (0-12)
Goodman	2001	Case series/random	782	Multicentre (4 States)	NR	NR	Revised Conflict Tactics Scale (semi-structured)	Records (81%), Interview: SCID (19%)	
		1	2		1	0	2	1	7
Havassy	2013	Consecutive	419	Local (multiple clinics, 1 city)	NR	0.44	McArthur (semi-structured)	Interview: DIS-IV	
		1	1		1	0	2	2	7
Hiday	2001	NR	331	Multicentre (4 cities)	NR	NR	Study-specific Qs	Records, Interview (SCID)	
		0	1		1	0	1	2	5
Hodgins	2007	Case series	205	Local (1 city)	NR	0.74	McArthur (semi-structured)	Records	
		1	0		0	2	2	1	6
Honkonen	2004	Case series	670	Multicentre (14 districts)	Same sociodemographics; more hospital use	0.65	Study-specific (1Q, NS)	National registry	
		1	2		1	1	0	1	6
Hsu	2009	Case series	155	Local (1 city)	Same gender, SZ diagnosis	0.85	Thai crime vic survey (semi-structured)	Records, clinician	
		1	0		1	2	2	1	7
Katsikidou	2013	Systematic	150	Regional (1 hospital)	NR	NR	USA/International crime vic survey (semi-structured)	Not reported	
		1	0		0	0	2	0	3
McPherson	2007	NR	324	Local (multiple clinics, 1 city)	NR	0.85	Conflict Tactics Scale (semi-structured)	Not reported	
		0	1		1	2	2	0	6
Morgan	2010	Consecutive	71	Multicentre (2 cities)	NR	0.8	Study-specific (13 Qs)	Records	
		1	0		1	2	2	1	7
Schomerus	2008	Random	1204	Multinational (3 countries)	NR	NR	Lehman QOL (1 Q)	Interview: SCAN	
		2	2		1	0	1	2	8

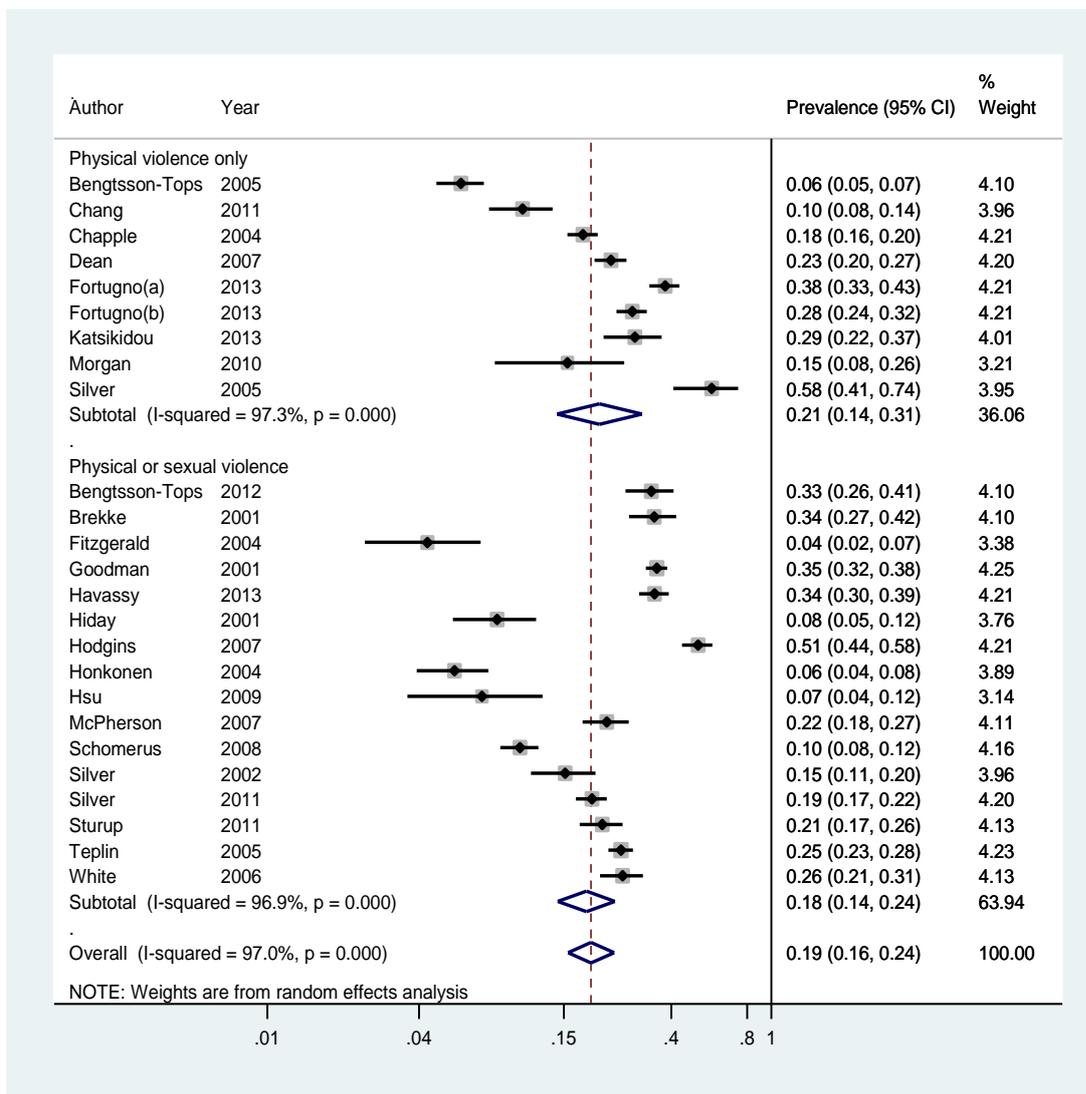
Author	Year	Sampling method	Sample size	Representativeness: Setting	Representatives: Non-participant characteristics	Response rate	Violence measure	Diagnostic measure	Quality score (0-12)
SCORE for each quality criterion (0-2)									
Silver	2002	NR	270	Local (1 city)	Same demogs, diagnosis	0.43	McArthur (semi-structured)	Records	
		0	1		1	0	2	1	5
Silver	2005	Complete	38	Local (1 city)	NR	0.91	Study-specific (4 Qs)	Interview: DSM-III-R	
		2	0		0	2	1	2	7
Silver	2011	NR	826	Multicentre (3 cities)	NR	NR	McArthur (semi-structured)	Records, interview: DSM-III-R	
		0	2		1	0	2	2	7
Sturup	2011	Convenience	390	Local (1 city)	Same demographics, clinical	0.78	Swedish crime vic survey (2 Qs)	Records	
		1	1		1	2	2	1	8
Teplin	2005	Random	936	Local (1 city)	Same age; more women, Hispanics	0.65	USA crime vic survey (semi-structured)	Interview: CIDI + Records	
		2	2		1	1	2	2	10
White	2006	NR	308	Local (1 city)	NR	NR	Lehman QOL (1 Q)	Records	
		0	1		0	0	1	1	3

NR=not reported

2.4.2.2 Prevalence of any violence or physical violence

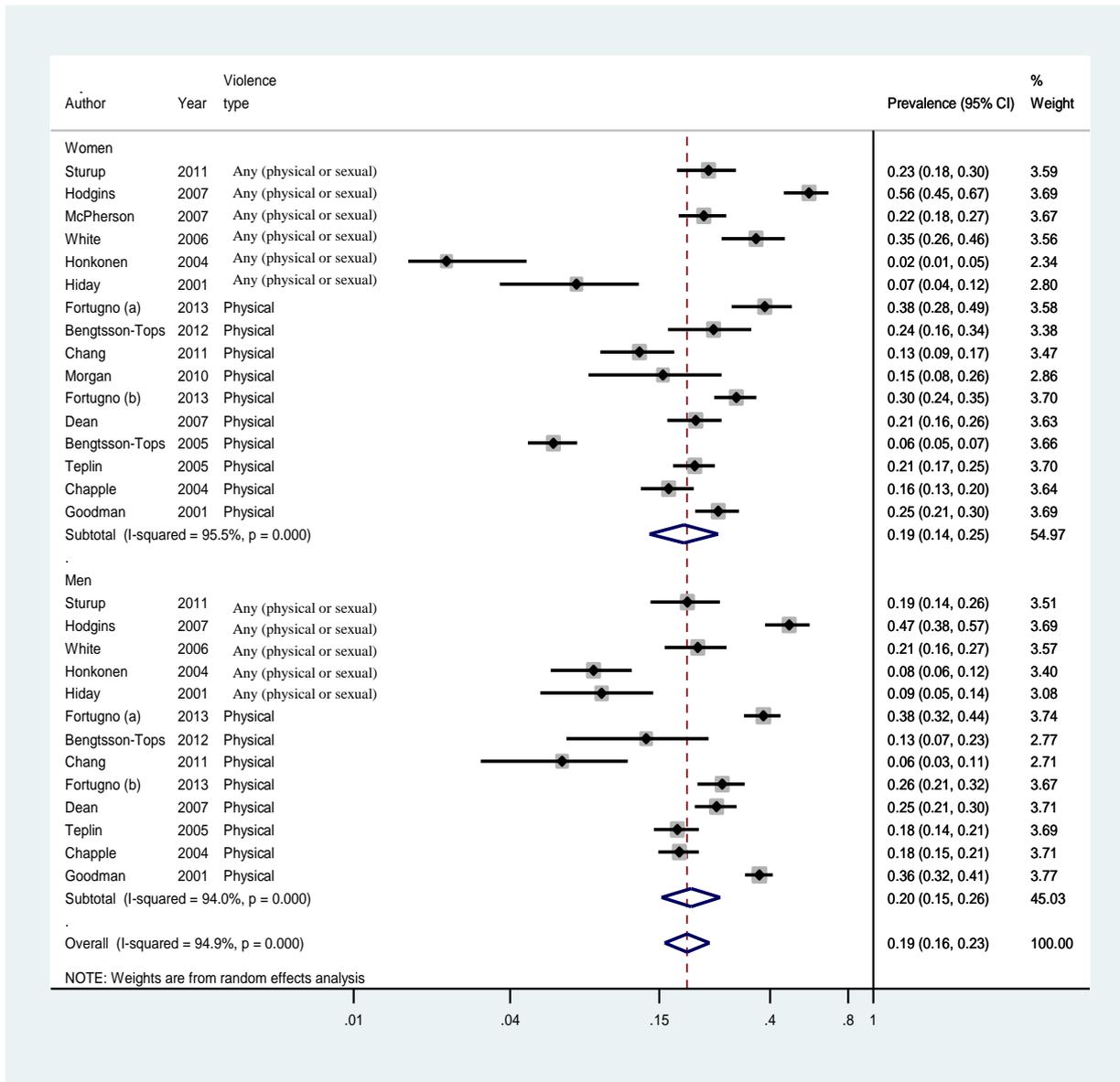
Prevalence estimates for physical violence (with or without sexual violence) are shown in Figure 2-3. Estimates ranged from 4% to 58%, with a pooled prevalence of 19% (CI 15%-24%) and high heterogeneity ($I^2=97\%$, $p<0.001$). Pooled estimates did not differ between studies that measured physical violence only vs. those that measured both physical and sexual violence ($p=0.60$).

Figure 2-3 Meta-analysis: prevalence of physical violence, stratified by violence measure



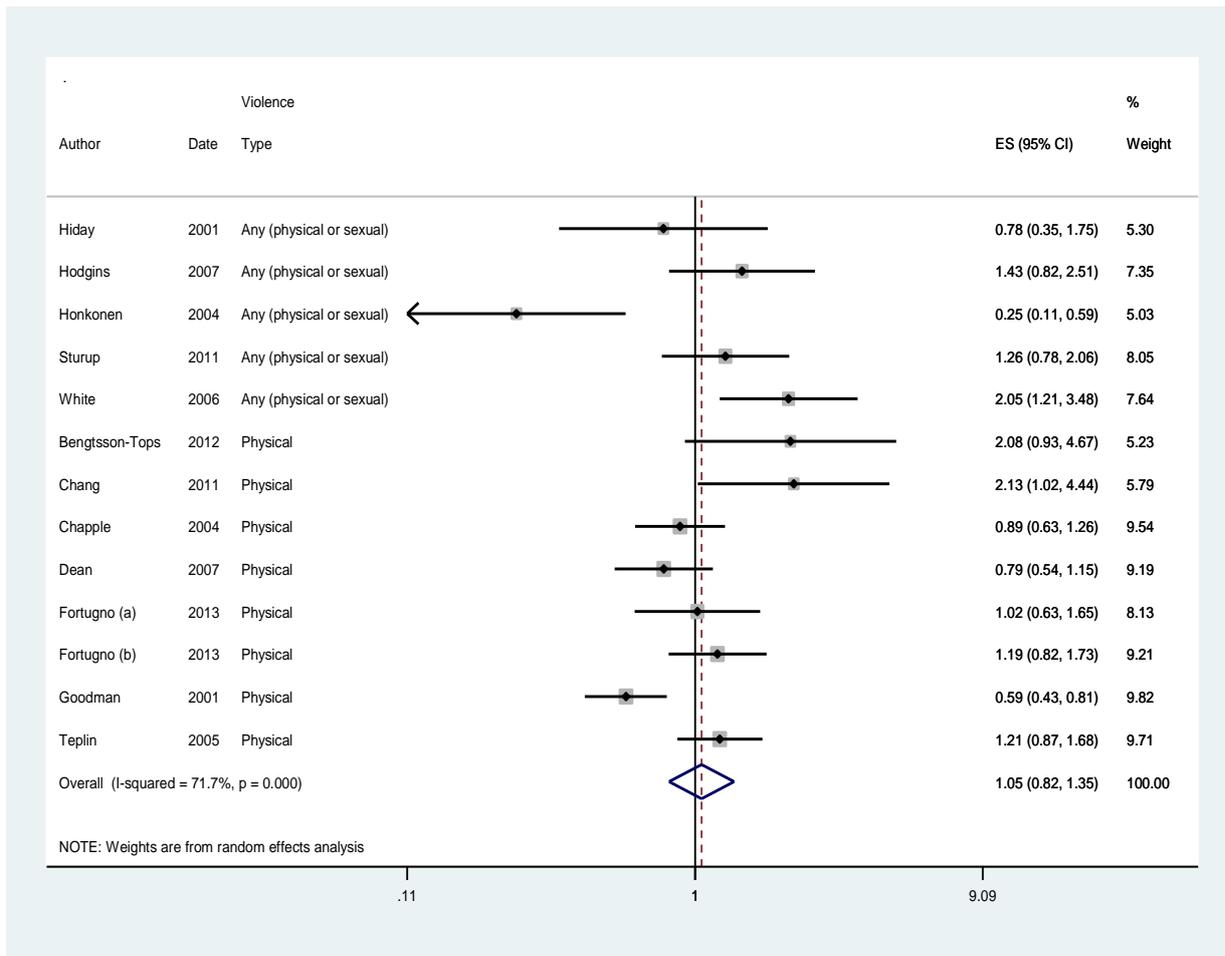
The prevalence of physical violence (with or without sexual violence) stratified by gender is shown in Figure 2-4. There was no difference in the pooled prevalence estimates among women (19%, CI 14%-25%; I^2 96%) and men (20%, CI 15%-26%; I^2 94%) ($p=0.87$).

Figure 2-4 Meta-analysis: prevalence of physical violence, stratified by gender



Difference by gender was also examined by estimating crude odds ratios of victimisation in women compared to men in the 13 studies that reported prevalence stratified by gender (see Figure 2-5). The pooled crude OR, with men as the baseline group, was 1.05 (CI 0.82-1.35, $p=0.32$; $I^2=72\%$), supporting a lack of association between gender and physical victimisation in people with SMI.

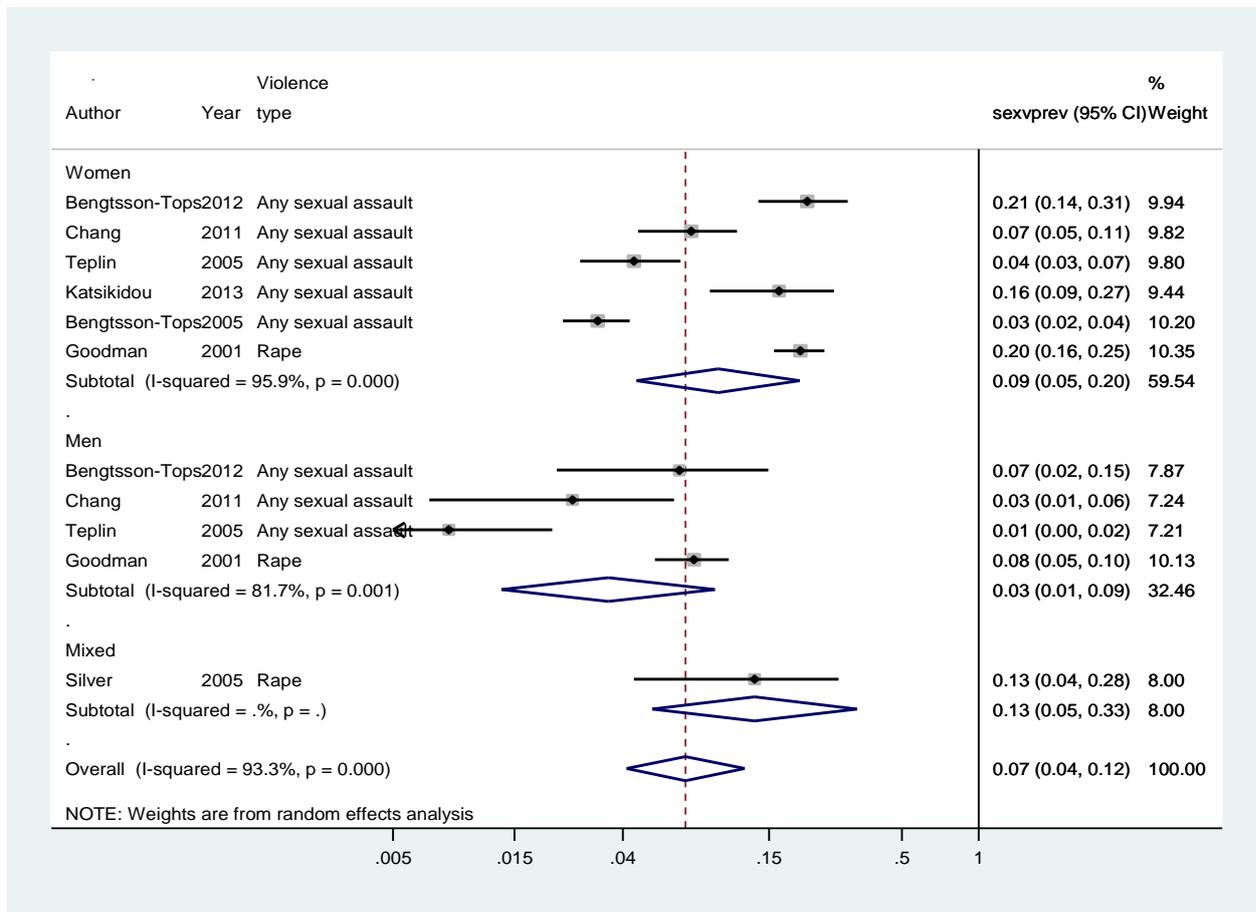
Figure 2-5 Meta-analysis: crude OR for physical violence in women vs. men (baseline group)



2.4.2.3 Prevalence of sexual violence

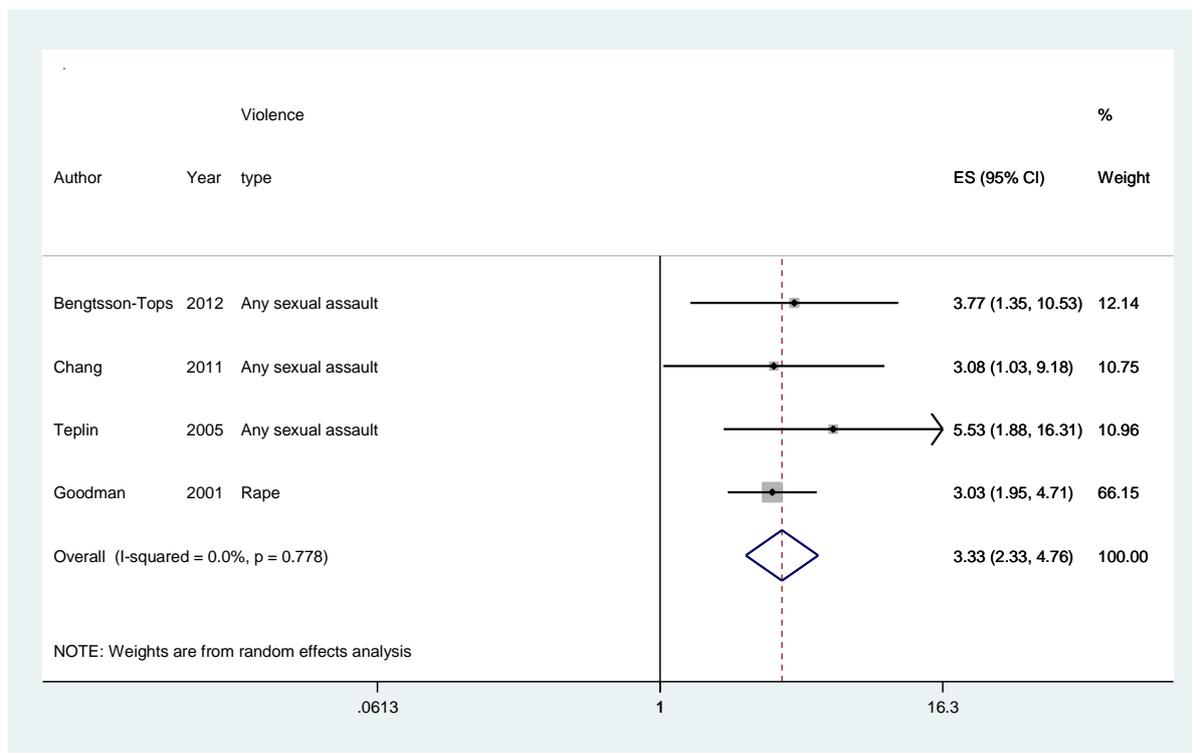
A subset of seven studies provided estimates for sexual violence (see Figure 2-6). These studies included 4232 participants, including 184 victims of sexual violence. The overall pooled prevalence of being a victim of sexual violence was 7% (CI 4%-12%; I^2 100%). The estimates ranged from 3%-20% in women, and from 1%-8% in men. The pooled prevalence was higher among women (9.4%, CI 4.5%-19.8; I^2 96%) than men (3.5%, CI 1.3%-9.2%; I^2 82%), but this difference was not significant at the 5% level ($p=0.13$).

Figure 2-6 Meta-analysis: prevalence of sexual violence, stratified by gender



Difference by gender was also examined by estimating crude odds ratios of sexual victimisation in women compared to men in the four studies that reported prevalence stratified by gender (see Figure 2-7). The pooled crude OR was 3.33 (CI 2.3-4.8, $p < 0.001$; $I^2 = 0$), supporting a higher risk of sexual victimisation among women.

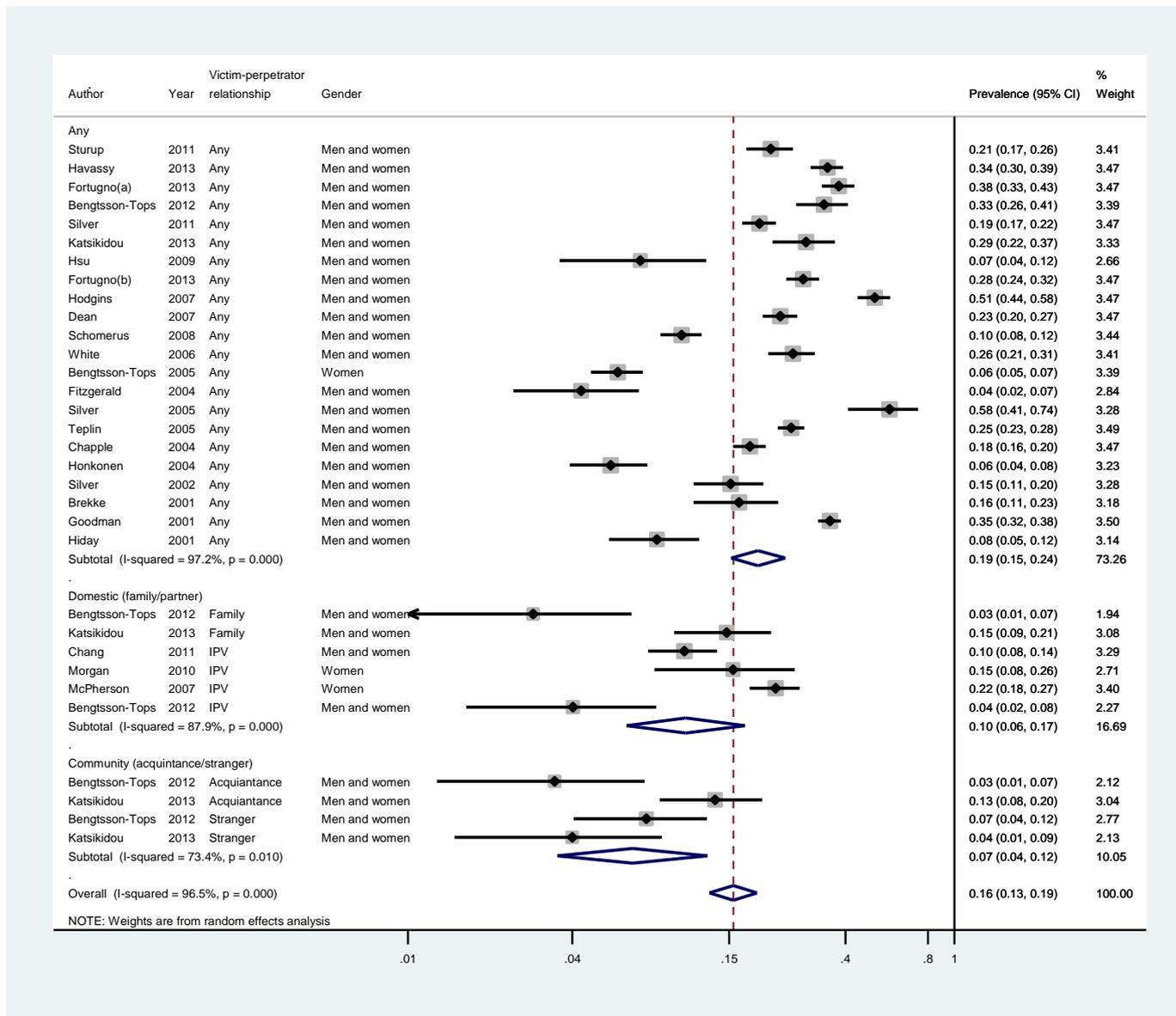
Figure 2-7 Meta-analysis: crude OR for sexual violence in women vs. men



2.4.2.4 Prevalence of domestic and community violence

Most studies (n=20) did not provide data disaggregated by perpetrator; five studies provided data on domestic violence, two of which also provided data on community violence (see Figure 2-8). The pooled prevalence of violence not disaggregated by perpetrator was 19% (CI 15%-24%; $I^2=97%$). The pooled prevalence of domestic violence was 10% (CI 6%-17%, $I^2=88%$), whilst that for community violence was 7% (4%-12%, $I^2=73%$) ($p=0.37$). The data did not allow for an examination of these subgroups by gender.

Figure 2-8 Meta-analysis: prevalence of physical violence, by perpetrator



2.4.2.5 Exploring sources of heterogeneity in prevalence estimates

Potential sources of heterogeneity in the prevalence estimates for any violence or physical violence were explored using: (a) subgroup meta-analyses (b) inspection of forest plots by relevant subgroups. The effect of twelve variables relating to study design & setting; population; violence measures; and quality was explored (as detailed in Table 2-6).

There was no evidence from the subgroup meta-analyses that any of the tested variables explained the heterogeneity in the prevalence estimates. Each of the tested variables had a high degree of heterogeneity (80%-98%) within each level, and appreciable overlap of confidence intervals across levels. Variables that are important in explaining heterogeneity would be expected to have relatively low heterogeneity within a given level of the relevant variable.

[118]A sensitivity analysis was carried out, restricted to American studies measuring past-year violence. It was assumed that these relatively homogeneous studies (in terms of country and violence duration) may make it easier to identify other sources of heterogeneity. However, no sources of heterogeneity were identified in this sensitivity analysis (results not shown).

Table 2-6 Exploring sources of heterogeneity using stratified meta-analysis

	Stratified meta-analysis			
	N studies	N participants	Pooled prevalence (95% CI)	I ² heterogeneity
Study design				
Cross-sectional	19	9256	19.1 (14.9-24.4)	97.1
Cohort	5	2490	20.1 (12.5-32.3)	96.4
Country				
USA	10	4796	19.9 (15.7-25.1)	94.6
UK	4	1265	30.6 (20.1-46.0)	95.6
Europe	7	4513	15.2 (9.0-25.8)	97.9
Australia/NZ	3	1348	16.9 (5.7-49.6)	97.6
Clinical setting				
Inpatients	10	4319	21.1 (15.4-28.8)	96.9
OP&IP	10	7135	13.6 (9.5-19.6)	97.7
Outpatients	4	567	23.4 (16.3-33.5)	79.8
Gender (% male)				
<=50%	5	3505	18.0 (11.5-28.2)	94.9
>50%	13	7327	18.1 (13.6-24.0)	96.3
Diagnosis (% with schizophrenia)				
>70%	9	4926	17.1 (11.5-25.4)	97.4
30-<=70%	5	1781	20.8 (13.1-33.3)	96.7
<30%	3	1133	25.5 (18.3-35.6)	90.4
Violence timeframe				
<=6 months	7	2707	18.1 (11.6-28.2)	97.2
12 months	14	6692	21.5 (16.6-27.8)	96.5
24-36 months	4	2678	12.1 (6.6-22.2)	96.7
Violence type				
Any violence (physical or sexual)	17	8438	17.8 (13.9-22.9)	96.9
Physical violence	7	3639	20.9 (13.4-32.8)	98.0
Violence measure				
Long (semi-structured)	9	3162	26.3 (20.9-33.2)	93.3
Brief (2-5 Qs)	6	3388	17.8 (10.5-30.1)	97.3
Very brief (1 Q)	8	5024	15.7 (10.7-23.0)	97.4
Sampling method				
Not random	12	5290	18.4 (12.5-27.)	97.9
Random	3	2314	18.8 (13.7-25.9)	97.9
Response rate (%)				
Total N participants				
<350	12	2546	18.1 (13.7-23.8)	94.6
>=350	13	9531	17.3 (11.8-22.7)	95.3
Total quality score				
<8	21	8165	20.7 (15.5-23.6)	98.3
>=8	4	3912	13.4 (7.0-25.7)	95.9

2.4.2.6 Study quality and prevalence estimates

The findings on prevalence as related to study quality are included in Table 2-5.

Pooled prevalence of physical victimisation was somewhat lower in high quality studies (13%, CI 7%-26%) than lower quality studies (21%, CI 16%-24%), but the difference was not statistically significant ($p=0.28$). There were no associations with individual study quality criteria, including sampling method, response rate or sample size.

2.4.3 Comparative studies

2.4.3.1 Characteristics of comparative studies

Seven studies provided data on a comparison group, including only one (14%) high quality study (total quality score ≥ 8) (see table Table 2-8). The study characteristics and findings are detailed in Table 2-7. These studies included a total of 1939 people with SMI and 45,295 controls. Six measured physical and sexual violence prevalence, and one estimated sexual victimisation rate. All studies included men and women, and two reported on risk disaggregated by gender.

The study designs and patient / control populations were highly heterogeneous. Most studies did not include controls from the same source population as the patients. Three studies did not adjust for any confounders and two only adjusted for a limited number of confounders (see Table 2-8 for details).

Table 2-7 Details of all comparative studies

Author, Year	Design	Country	Gender	SMI population	Control population	SMI N	Control N	Violence type	SMI prevalence/rate	Control prevalence/rate	Crude OR/RR (95% CI)	Confounder-adjusted?	Quality score
Hsu 2009	CS	Taiwan	Mixed	OP&IP (local)	National CVS data	155	10487	Any	7.1 (3.6-12.3)	3.9 (3.5-4.3)	1.9 (1.0-3.5)	No	3
Katsikidou 2013	CS	Europe	Mixed	OP (local)	Relative of general hospital inpatients	150	150	Physical Sexual	28.7 (21.6-36.6) 8.0 (4.2-13.6)	8.0 (4.2-13.6) 4.0 (1.5-8.5)	4.6 (2.3-9.2) 2.1 (0.8-5.7)	Limited ¹	4
Lin 2009	Database	Taiwan	Mixed	National rape database	National rape database	NR	NR	Sexual	13.9/10,000	2.42/10,000	5.8 (4.8-6.8)	No	1
Silver 2002	CS	USA	Mixed	IP (local)	Neighbourhood residents	270	477	Any	15.2 (11.1-20.0)	6.9 (4.8-9.6)	2.4 (1.5-3.9)	Yes	7
Silver 2005	Cohort	New Zealand	Mixed	Dunedin birth cohort	Dunedin birth cohort	38	562	Physical Sexual	57.9 (40.8-73.7) 13.2 (4.4-28.1)	20.5 (17.2-24.0) 0.9 (0.3-2.1)	5.3 (2.7-10.5) 16.9 (4.7-61.2)	Yes ²	10
Sturup 2011	CS	Europe	Mixed	IP (local)	National CVS data	390	1170	Any	21.3 (17.3-25.7)	3.8 (2.7-5.0)	6.9 (4.7-10.2)	No	7
Teplin 2005	CS	USA	Mixed	IP&OP (local)	National CVS data	936	32449	Any Physical Sexual	25.32 (22.9-27.8) 19.0 (16.6-21.7) 2.7 (1.7-3.9)	2.8 (2.5-3.1) 1.5 (1.4-1.7) 0.2 (0.1-0.2)	11.8 (9.9-14.0) 15.0 (12.5-18.1) 17.1 (10.6-27.7)	Limited	6

1. Adjusted OR were not included in the analysis, as they reported OR for any violent or non-violent victimisation
2. Adjusted OR were not included in this analyses, as they reported OR in people with SZ vs. those with other psychiatric disorders rather than those without any disorder

Key: CS=cross-sectional, CVS=Crime Victimisation Survey, NR=not reported

Table 2-8 Quality assessment for comparative studies

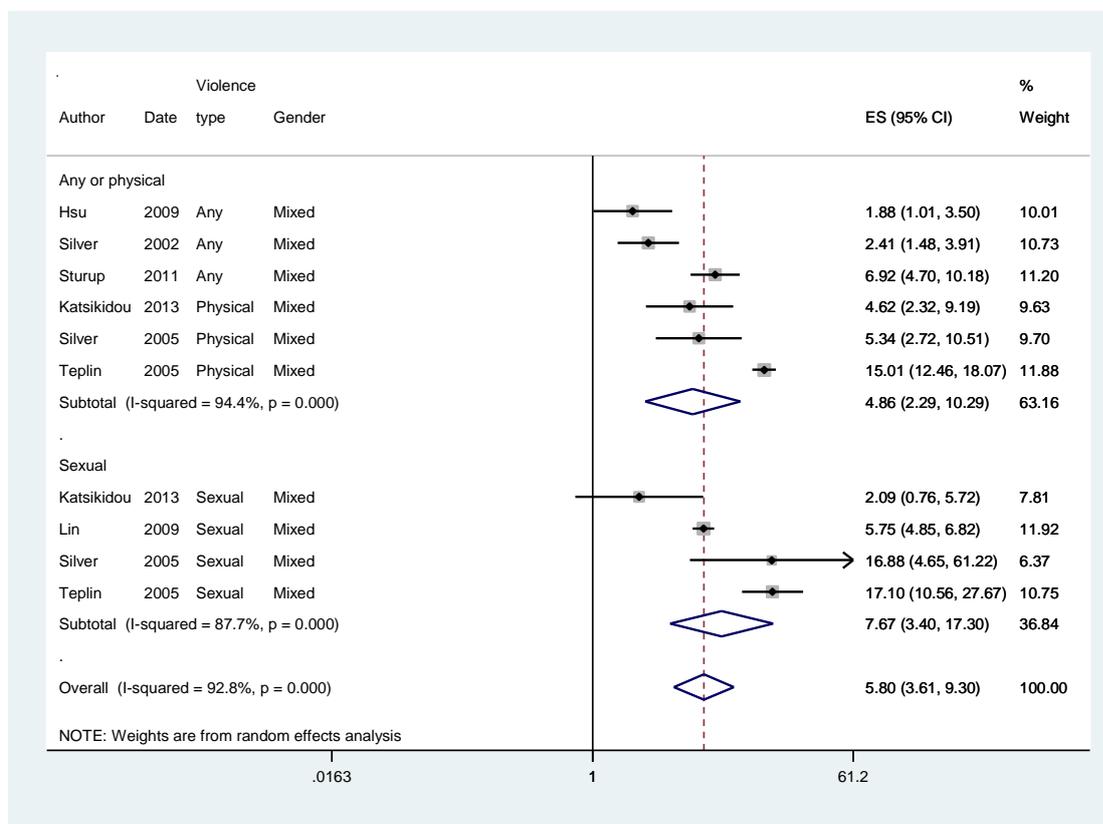
Author	Year	Sampling method (SMI/controls)	N (SMI/controls)	Response rate SMI/control	Suitability of controls (A): setting SMI/controls	Suitability of controls (B): % men (SMI/controls)	Suitability of controls (B): Mean age (SMI/controls)	Adjustment for confounder	
Score for each quality criterion (0-2)									Total quality score (0-12)
Hsu	2009	Case series/random	155 /10487	85/NR	Local / National (different time periods)	33/NR	37/NR	No	
		1	1	1	0	0	0	0	3
Katsikidou	2013	Systematic/NR	150 /150	NR/NR	Local / Local (different source population)	51/51	43/45	Area of residence, occupation	
		0	0	0	1	2	1	1	4
Lin	2009	National rape database	NR/NR	NA	National / National (professional reporting)	NR/NR	NR/NR	No	
		0	0	0	1	0	0	0	1
Silver	2002	Case series/random	270 /477	43/37	Local / Local (same neighbourhood)	55/37	25/22	Demographics, SES, violence perpetration, area	
		1	1	0	2	1	2	2	7
Silver	2005	Cohort/cohort	38 /562	91 for cohort	Local / Local (same cohort)	48/53	21/21	Demographics, SES, psychiatric co-morbidity, violence	
		2	0	2	2	2	2	2	10
Sturup	2011	Convenience/random	390 /1170	78/76	Local /Local (difference in whether have social security number)	48/52	37/37	No	
		1	1	2	1	2	0	0	7
Teplin	2005	Random/random	936 /32449	65/NR	Local / National	52/NR	42/NR	Matched on age, sex, income, city size	
		2	2	1	0	0	1	1	6

2.4.3.2 Crude and adjusted odds ratios for victimisation

The crude odds ratio estimates are shown in Table 2-7 and Figure 2-9. The estimates varied widely from a two-fold risk of any violence in people with SMI compared to neighbourhood controls (Silver, 2002), to a seventeen-fold risk of sexual violence in people with SMI controlled to national crime survey participants (Teplin, 2005). The pooled crude OR among those with vs. without SMI was 4.9 (CI 2.3-10.3, $I^2=94%$) for any or physical victimisation, and 7.7 (CI 3.4-17.3, $I^2 88%$) for sexual victimisation.

Only two studies (both US-based) reported adjusted odds ratios: Silver et al reported adjusted OR of 2.4 (CI 1.9-3.5) for any victimisation in people with SMI compared to local neighbourhood residents, after taking into account socio-demographics, area characteristics and violence perpetration; whilst Teplin et al reported adjusted OR of 11.8 (CI 9.9-14) in people with SMI compared to participants in the national crime survey, after matching by age, sex and household income. This study showed that relative odds for women with SMI vs control women (OR=12-20) were higher than those for men with SMI vs control women (OR=7-11).

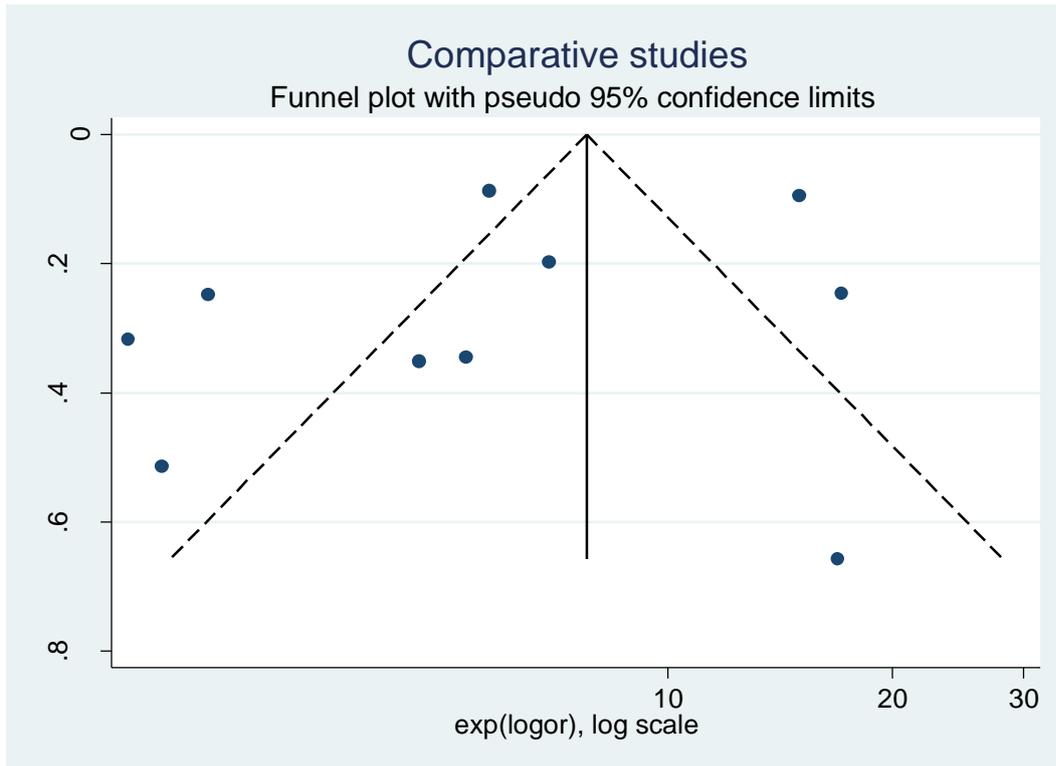
Figure 2-9 Meta-analysis: crude OR for victimisation in people with vs. without SMI



2.4.3.3 Publication bias in comparative studies

The funnel plot used to assess publication bias in comparative studies is shown in Figure 2-10. There was no evidence from the funnel plot, or from Peter's test ($p=0.67$) for publication bias.

Figure 2-10 Funnel plot for comparative studies



2.4.4 Risk factor studies

2.4.4.1 Risk factors: results overview

Seventeen studies reported associations between risk factors and victimisation. These studies included 7570 people with SMI, of whom 1792 (23.7%) had been victims of recent violence. The studies reported on associations with physical violence (with or without sexual violence) (see Table 2-3 for details). None of the studies reported correlates of sexual violence only.

Table 2-9 details the risk factors assessed; grouped into the following five domains: demographic, social, clinical, substance misuse, violence perpetration and childhood abuse. For each factor, the table summarises:

- The number of studies providing data for univariate meta-analyses
- The total number of participants and victims in these studies
- The pooled crude OR (with 95%) for the association between the given factor and victimisation
- The extent of heterogeneity (I^2) due to between-study variation in the OR estimates

Where a factor was reported by less than three studies, no meta-analyses were carried out, but the results of individual studies were summarised in the table footnotes.

Overall, the crude odds ratio meta-analyses showed that victimisation was strongly associated with homelessness, substance misuse and violence perpetration; moderately associated with illness severity and weakly associated with symptom cluster. Victimisation was not associated with any demographic factors, diagnosis or socio-economic status (at the 5% significance level). The findings per domain are summarised Table 2-9, and in Figure 2-11 to Figure 2-15. They are discussed in detail below

Table 2-9 Meta-analyses of crude ORs for the association between risk factors and victimisation

Risk domain	N studies	N people with SMI	N victims	Random effects pooled OR (95% CI)	p	I ²
Demographic	15					
Sex (F vs. M)	13	6718	1549	1.1 (0.8-1.4)	0.68	72
Younger age	5	2313	540	0.98 (0.97-1.0)	0.11	77
Ethnic minority	6	2335	574	1.2 (0.9-1.4)	0.20	15
Social	10					
Socio-economic ¹	8	3486	754	1.2 (0.87-1.6)	0.27	72
Socio-economic: unemployment	5	2161	618	1.2 (0.9-1.5)	0.24	25
Social contact ²	3	1532	433	1.0 (0.5-2.1)	0.93	87
Homelessness	9	4543	998	2.6 (2.0-3.4)	<0.001	24
Area of residence (urban vs. rural) ³	2	1001	64	NA	-	-
Clinical	11					
Diagnosis (SZ vs. affective)	7	2335	574	1.0 (0.8-1.4)	0.91	25
Co-morbid PD ⁴	2	963	173	NA	-	-
Illness severity ⁵	6	3146	738	1.8 (1.1-2.9)	0.01	81
Illness severity: admissions history	4	1552	420	1.6 (0.77-3.5)	0.20	85
Symptom cluster ⁶	4	2532	496	1.2 (1.0-1.4)	0.01	79
Symptom cluster: positive symptoms	3	1570	324	1.0 (0.98-1.1)	0.35	0
Substance misuse⁷	7	4104	879	2.5 (2.0-3.2)	<0.001	52
Violence perpetration (recent)	4	2469	460	5.3 (2.4-11.7)	<0.001	87
Childhood abuse⁸	1	782	274	NA	-	-
Any domain	17	7570	1792			

1. Socio-economic: includes 2 studies on educational attainment, 1 on poverty and 2 on unemployment

2. Social contact: includes 2 studies on any social contact and 1 study on contact with family members

3. Urban residence: Two studies reported no association: Hiday reported a crude OR of 1.5 (CI 0.6-3.6) and Honkonen reported a crude OR of 0.5 (CI 0.2-1.1).

4. Co-morbid personality disorder: Dean reported a positive association (crude OR 6.2, CI 3.8-10.3), whilst Hiday reported no association (crude OR 0.4, CI 0.2-1.0)

5. Illness severity: includes 1 study on impaired function, 1 study on early illness onset and 4 studies on admission

6. Symptoms cluster: includes 1 study on disorganisation, 2 on manic symptoms and 3 on positive symptoms

7. Substance misuse: includes 4 studies on lifetime abuse (2 any, 1 drugs, 1 alcohol) and 5 studies on current misuse (2 any, 2 drugs, 1 alcohol)

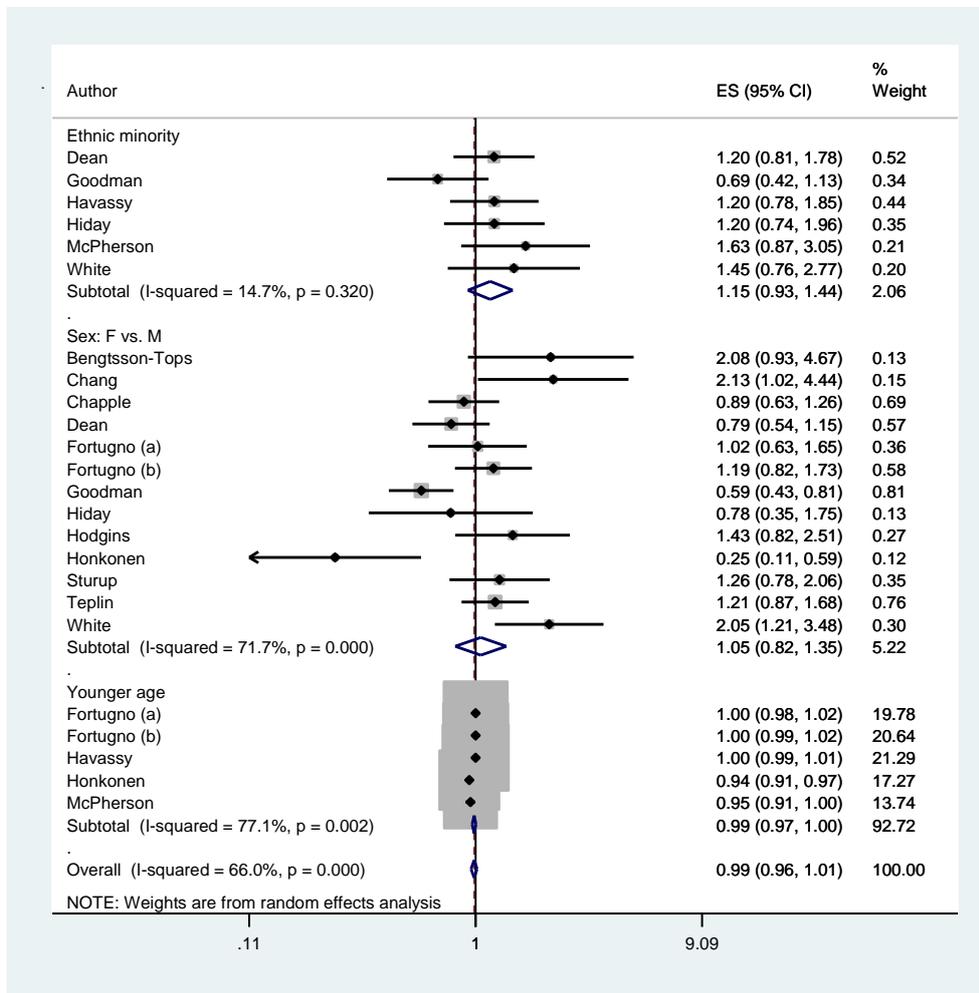
8. Goodman reported positive association with childhood physical abuse (crude OR 2.8, CI 2.1-3.9) and childhood sexual abuse (crude OR of 1.9, CI 1.6-3.5). Morgan reported a 'significant' crude association with childhood abuse, but did not report ORs.

2.4.4.2 Risk factors: demographic domain

Of the thirteen studies which measured gender, ten found no associations between gender and victimisation, two found higher odds for women and one found higher odds for men; with a pooled OR of 1.05 (CI 0.82-1.4; $I^2=72%$) for risk in women compared with men.

None of the studies measuring ethnic minority status (n=6 studies) or age (n=5 studies) found an association between these variables and victimisation.

Figure 2-11 Meta-analysis: crude odds ratios for risk factors-demographic domain

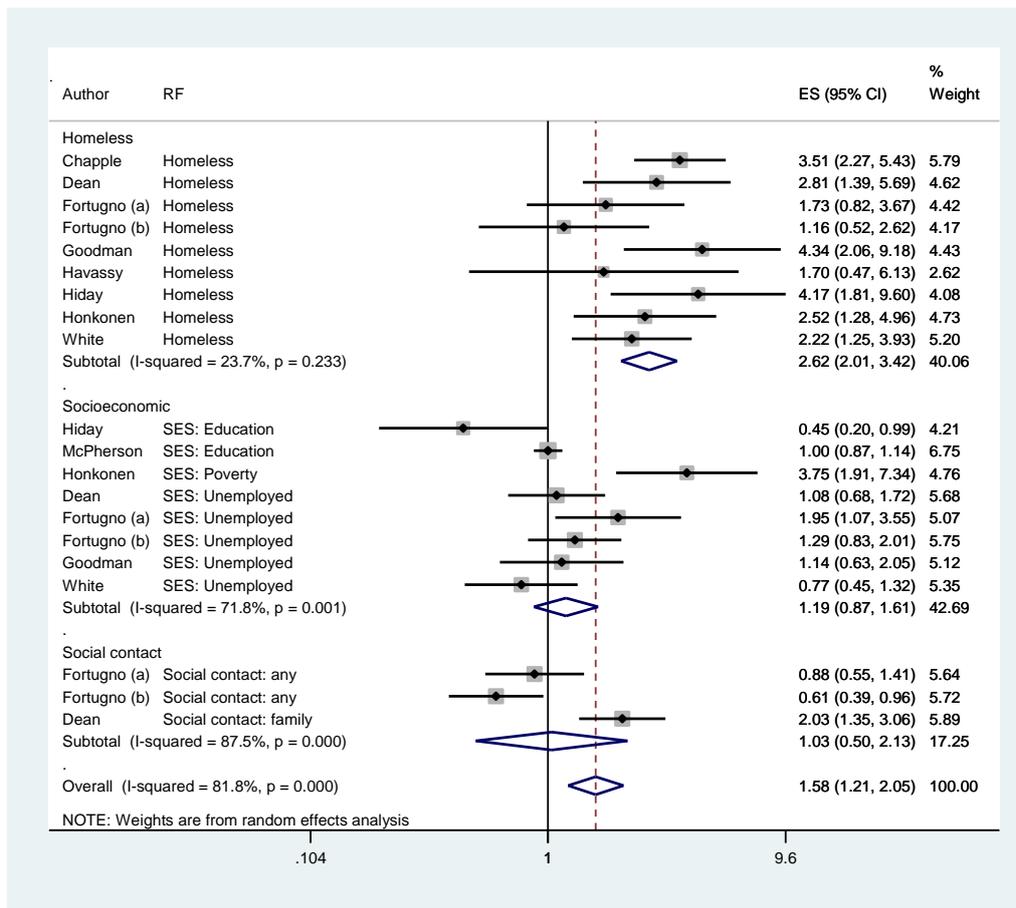


2.4.4.3 Risk factors: social domain

Variables in the social domain were grouped into the subdomains of homelessness, socio-economic status, social contact and urban vs. rural residence.

Six of the nine studies measuring homelessness, and six of these found positive associations with victimisation (pooled OR 2.6, CI 2.0-3.4; $I^2=24\%$). Four of the five studies measuring unemployment found no association with victimisation risk (pooled OR 1.2, CI 0.9-1.5; $I^2=25\%$). None of the other sub-domains were consistently associated with victimisation risk (see Table 2-9 and Figure 2-12), but there were only a limited number of studies reporting on each, and the measures used varied across studies.

Figure 2-12 Meta-analysis: crude odds ratios for risk factors-social domain



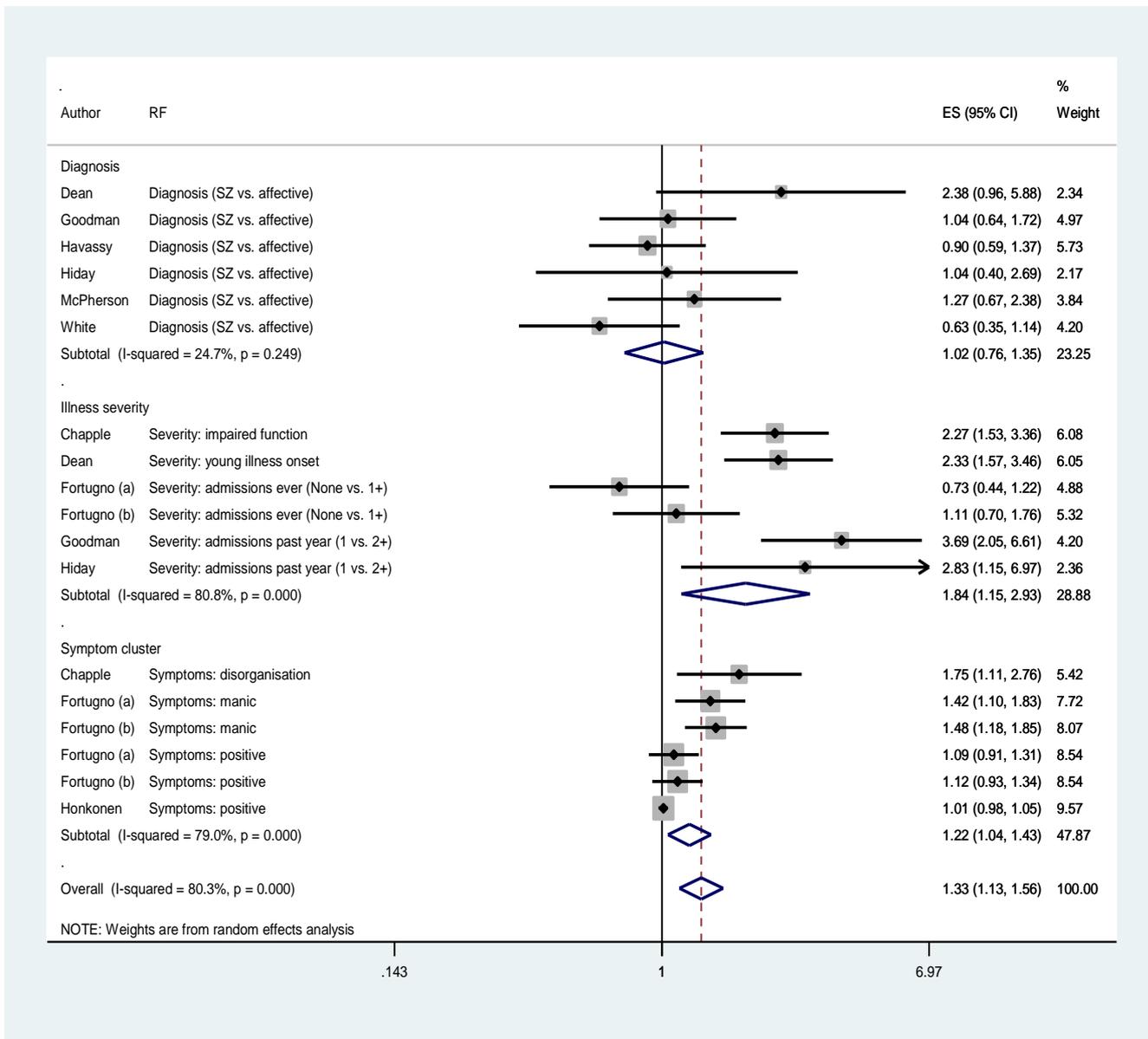
2.4.4.4 Risk factors: clinical domain

Variables in the clinical domain were grouped into the subdomains of diagnosis, co-morbid personality disorder, illness severity and symptom cluster.

Six studies compared victimisation in those with schizophrenia vs. those with an affective illness, and none found an association between diagnosis and victimisation risk (pooled OR 1.0, CI 0.8-1.4; $I^2=25\%$). Two studies measured co-morbid PD, one finding a positive association and the other no association with victimisation risk (see Table 2-9).

Findings on illness severity and symptom cluster were more difficult to synthesise, because the measures varied across studies. There was some evidence for a moderate association between victimisation risk and illness severity (e.g. as measured by impaired function, young illness onset and the number of admissions). There was limited evidence for a weak association between victimisation and manic or disorganised symptom clusters.

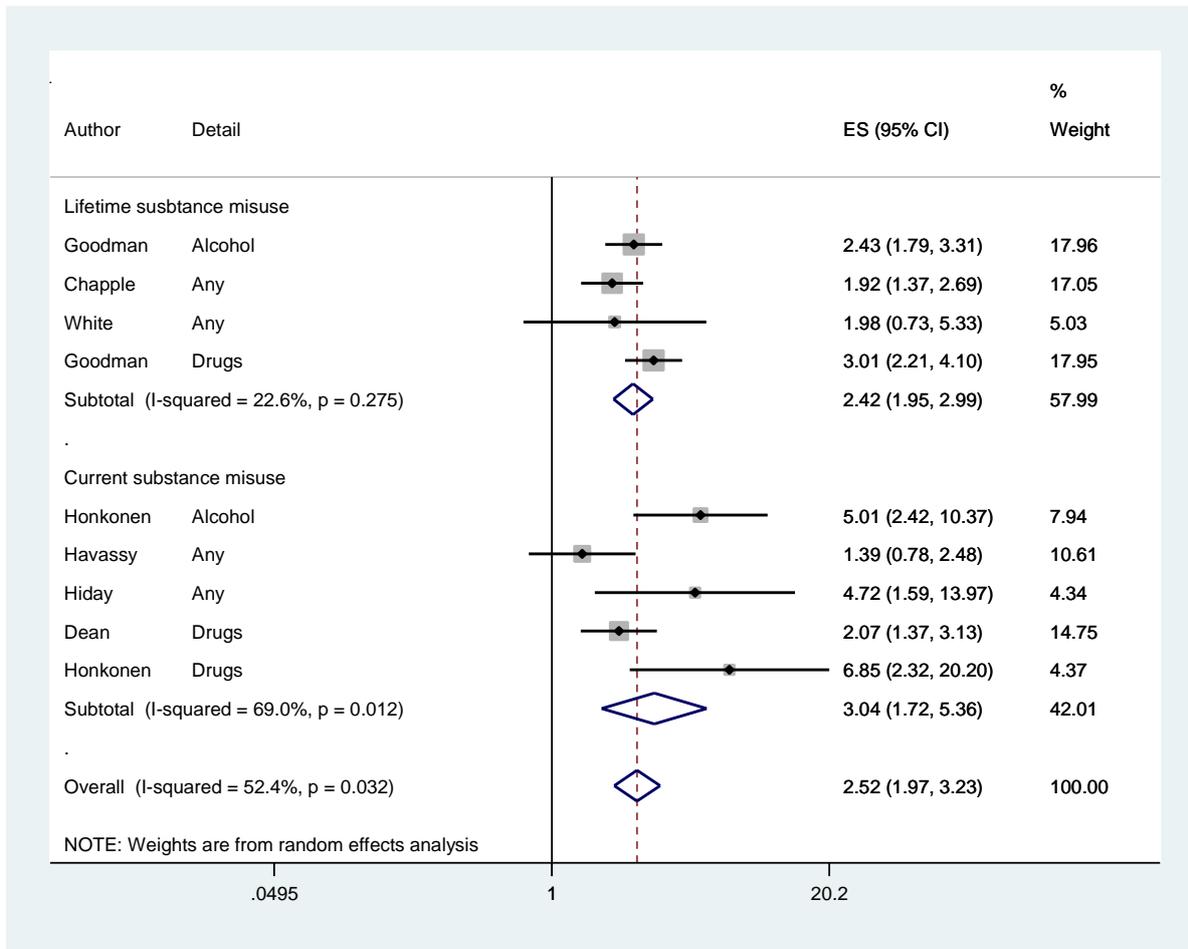
Figure 2-13 Meta-analysis: crude odds ratios for risk factors-clinical domain



2.4.4.5 Risk factors: substance misuse

Seven studies measured substance misuse. These studies used different measures, including lifetime or recent misuse of any substances, alcohol or drugs. There was consistent evidence for a strong association between substance misuse and victimisation risk, across studies and measures, with a pooled OR of 2.5 (CI 2.0-3.2, I^2 52%).

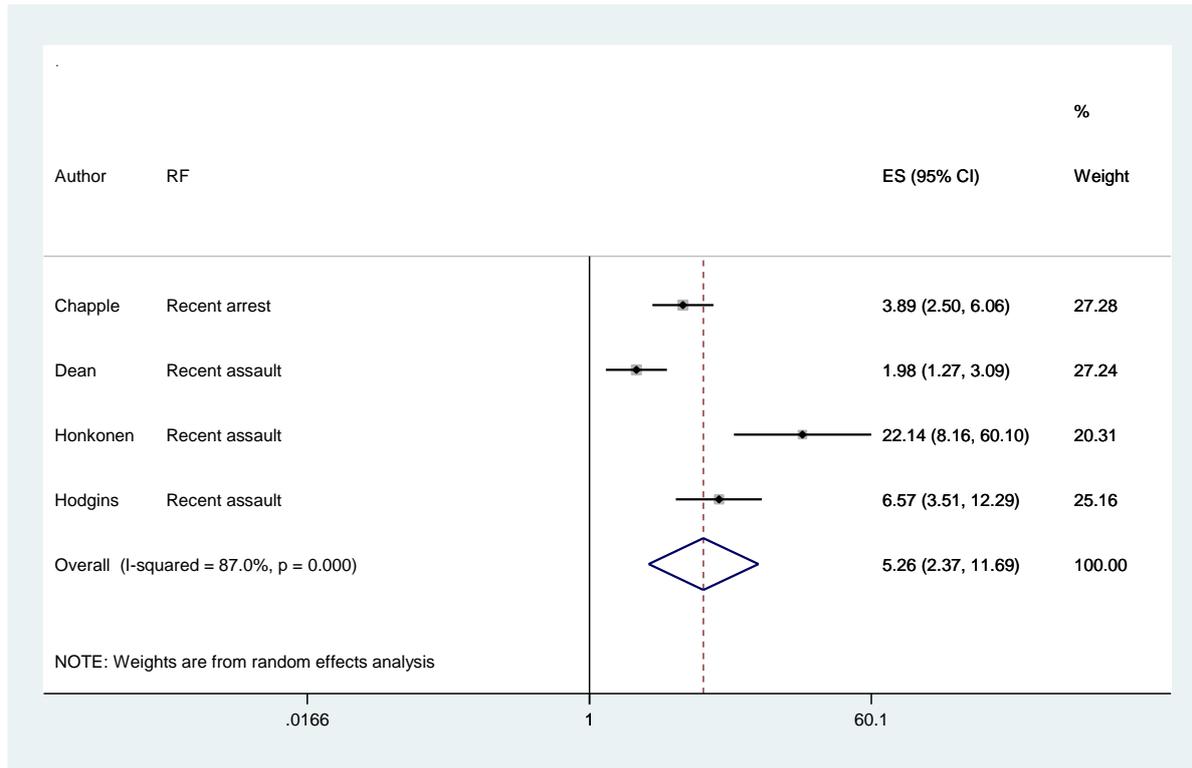
Figure 2-14 Meta-analysis: crude odds ratios for risk factors-substance misuse



2.4.4.6 Risk factors: violence perpetration

Four studies measured a history of violence perpetration, including a history of arrests or violent assaults. There was consistent evidence for a strong positive association between violence perpetration and victimisation, with a pooled OR of 5.3 (CI 2.4-11.7; $I^2=87\%$). This was the highest pooled OR for any of the risk factors assessed in this study.

Figure 2-15 Meta-analysis: crude odds ratios for risk factors-violence perpetration



2.4.4.7 Risk factors: childhood abuse

Only two studies assessed association between childhood abuse and recent victimisation. Goodman reported moderate to strong independent association with childhood physical and sexual abuse, [109] whilst Morgan reported only crude association with childhood abuse. [115]

2.4.4.8 Risk factors: multivariate analyses

Adjusted OR meta-analyses were carried out for the three risk factors that were strongly associated with victimisation risk in the crude OR meta-analyses: homelessness, substance misuse and violence perpetration. These results are summarised in Table 2-10.

Data on adjusted ORs were available from six studies on homelessness, nine on substance misuse and three on violence perpetration. In most studies, the multivariate analyses adjusted for demographics, social factors and clinical characteristics in addition to the risk factor of interest. The meta-analyses of adjusted ORs provided some evidence that victimisation was independently associated with homelessness (pooled OR 1.9, CI 1.5-2.3), substance misuse (pooled OR 2.0, CI 1.6-2.5; I^2 59%) and violence perpetration (pooled OR 2.4, CI 0.88-6.7) at the 10% significance level.

Data on adjusted ORs was obtained from the studies that reported crude ORs for a given factor, and from a few additional studies which only reported adjusted ORs. Some studies which reported crude ORs did not report adjusted ORs for those factors which were not independently associated with victimisation. This missing data would bias the meta-analysis away from the null, since some data on null associations could not be included.

Table 2-10 Meta-analyses of adjusted odds ratios for the association between risk factors and victimisation

Risk domain	N studies providing only crude OR estimates ¹	N studies providing crude and adjusted OR estimates	N studies providing only adjusted OR estimates ²	Total N studies included in adjusted OR meta-analysis	N people with SMI	N victims	Random effects pooled OR (95% CI)	p	I ²
Homelessness	3	6	0	6	3434	842	1.9 (1.5-2.3)	<0.001	0
Substance misuse	2	5	4	9	2529	257	2.0 (1.59-2.5)	<0.001	59
Violence perpetration	1	3	0	3	2264	355	2.4 (0.88-6.7)	0.09	88

1. Some studies which reported crude ORs did not report adjusted ORs for those factors which were not independently associated with victimisation. This missing data would bias the meta-analysis away from the null, since some data on null associations could not be included.

2. These studies did not report crude ORs.

2.5 Discussion

2.5.1 Key findings

The review identified twenty six studies on recent violence against people with severe mental illness (4 of which were high quality), with a total of 12,212 participants. Estimates for prevalence of physical violence in 25 studies ranged from 4% to 58% (pooled prevalence 19%, CI 15%-24%; I^2 97%), with no difference in pooled prevalence between men and women. Estimates for sexual violence in seven studies ranged from 3% to 20% in women (pooled prevalence 9%, CI 4%-20%; I^2 96%) and from 1% to 7% in men (pooled prevalence 3%, CI 1%-9%; I^2 82%); with three-fold higher odds in women vs. men. High heterogeneity was not explained by a wide range of factors related to study settings, populations, methodology and quality. Seven studies compared victimisation risk in people with vs. those without SMI, but were mostly of low quality with selection bias and lack of adjustment for confounders. The pooled crude OR was 4.9 (CI 2.3-10.3, I^2 =94%) for physical victimisation and 7.7 (CI 3.4-17.3, I^2 =88%) for sexual victimisation. There was limited evidence on the extent of violence by different perpetrators (i.e. domestic and community violence) and no comparative studies were identified for these outcomes. Meta-analyses of crude associations of risk factors with victimisation found that victimisation was strongly associated with homelessness, substance misuse and violence perpetration; and moderately associated with illness severity. There was no association between victimisation and demographic factors, diagnosis or socioeconomic status. Independent associations were difficult to assess because of data limitations.

2.5.2 Findings in context of past reviews

The findings of this review compared to those of previous related systematic reviews are summarised in Table 2-11 and discussed below.

Table 2-11 Past and current systematic review on mental illness and victimisation: main findings

Author (years covered by review)	Violence type (time frame)	N included studies (population)	Results: prevalence range	Results: pooled prevalence	Results: odds ratio range	Results: pooled odds ratio	Results: risk factors
Maniglio (1996-2007)	Any violence (past 3 years)	9 (all SMI)	4%-35%		NA		Key RFs: substance misuse, violence perpetration, homelessness, symptom severity
Hughes (1990-2010)	Any violence (past year)	14 (any mental illness, of which 8 SMI)	6%-63%	24% (CI 18%- 31%; I2 97%)	2.0-11.8	3.9 (CI 0.91- 16.4; I ² 99%)	NA
Oram (inception- 2011)	Domestic violence (past year)	10 (psychiatric patients, of which 8 SMI)	4%-93%		NA		NA
Trevillion (inception- 2011)¹	Domestic violence (past year)	18 (diagnosed mental disorder, of which 1 SMI)	2%-82%	Median prevalence 35% (IQR 16%-40%)	1.5-8.1	3.3 (CI 2.3- 4.7; I ² 33%)	NA
This review (2000-2013)	Any violence (past 3 years)	26 (all SMI)	4%-58%	19% (CI 15%- 24%, I2 97%)	1.9-15.0	4.9 (CI 2.3- 10.3; I ² 94%)	Key RFs: substance misuse (OR 2.5, CI 2.0-3.2), homelessness (OR 2.6, CI 2.0-3.4), violence perpetration (OR 5.3, CI 2.4- 11.7), illness severity (OR 1.8, CI 1.1-2.9)

1. Results reported for Trevillion et al relate to findings on depressive disorder. There were similar findings for other common mental disorders

Key: NA: not applicable, CI: 95% CI, OR: odds ratio, RF: risk factors

2.5.2.1 Prevalence

This review provides an up to date synthesis on the prevalence and risk of victimisation among people with SMI, with detailed assessment of study quality and sources of heterogeneity. The pooled prevalence estimates were in line with those in published reviews. Most studies found that a fifth to a third of people with SMI had been a victim of recent violence, and around 1 in ten women had been a victim of recent sexual violence, which far exceeds estimated levels of victimisation in the general population of 5% or less (as measured in international crime surveys). [41] In the general population men are at higher risk of physical and community violence, and women are at higher risk of sexual and domestic violence. [91] [16] In the SMI population men and women were at equally high risk of physical violence. Since few studies provided data on perpetrators, it is not known whether the nature and context of this violence differs by gender, but this should be investigated in future studies in order to guide interventions.

High heterogeneity in prevalence estimates was not explained by a broad range of study methodology, population and quality measures. Therefore, there is likely to be a true difference in the prevalence of violence depending on study setting and population. Nonetheless, some of the variations in prevalence are worth highlighting. There was a suggestion that prevalence of victimisation in the UK was higher than in other settings. This may be because UK studies were more likely to include inpatient samples and forensic settings. There was also a suggestion that studies that used a longer (semi-structured) measure of violence found a higher victimisation prevalence than those using a brief measure. Longer instruments ask participants if they have experienced a number of specific violence behaviours. Brief instruments only ask one or two generic questions on whether the respondent had been a victim of violence. Past research has shown that detailed, behaviour-specific measures tend to result in higher prevalence estimates, since this does not rely on the respondent's perception of whether a given experience constitutes 'victimisation'. [16, 48] Finally, there was a suggestion that studies with a lower proportion of patients with schizophrenia had higher victimisation prevalence (although confidence intervals overlapped). However, this finding is difficult to interpret in the absence of within study comparisons by diagnosis- since differences between studies may be explained by factors other than diagnosis such as study settings or violence

measures. In this review, victimisation risk was compared between those with a schizophrenic vs affective illness in six studies, and no risk difference was found (pooled OR 1.0 (CI 0.8-1.4; I^2 23%). Non-schizophrenia high risk diagnoses include personality disorders and substance misuse (either as primary or co-morbid conditions), but there was insufficient data for synthesis of risk by these diagnoses compared to schizophrenia.

2.5.2.2 Relative odds

The pooled estimate of five-fold relative odds for physical violence in people with SMI compared to those without mental illness is in line with the four-fold risk reported in the systematic review by Hughes et al (which mainly related to people with common mental disorders), [11] and somewhat higher than the three-fold risk of domestic violence in the Trevillion review. Although the trend was for higher risk in this review, which was restricted to the SMI population, the OR confidence intervals across the three reviews overlapped. Therefore, in these reviews, those with any mental illness- including those with SMI and common mental disorder- had at least 3-fold increased odds of being a victim compared to those without mental illness.

It was difficult to interpret the evidence from comparative studies included in this review, since most did not include an appropriate control group (i.e. one that was derived from the same source population but without the exposure of interest) and did not control for confounders. No studies have examined the risk factors accounting for the excess risk.

2.5.2.3 Risk factors

This study provided the first quantitative synthesis of risk factors for victimisation among people with SMI. The odds of victimisation were five-fold higher among those with a history of violence perpetration, three-fold higher among those with a history of substance misuse or homelessness and two-fold higher among those with greater illness severity. This reflects the findings by Maniglio et al, who identified the same key risk factors (but did not quantify their effects). Interestingly, key factors which are associated with victimisation in the general population, such as gender, age and social deprivation, were not associated with victimisation in the SMI

population. In the general population, young men are at highest risk of physical violence, in part due to lifestyle and socialisation with delinquent peers. [16] The risk decreases with age as men acquire employment and move to independent living with family responsibilities. [119] Therefore older age and employment are protective. It could be argued that the lack of meaningful social roles and social integration for the majority of people with SMI could leave them vulnerable to victimisation regardless of age or gender.

The finding that violence perpetration and drug misuse are key risk factors for being a victim is not surprising. There are well-established links between victimisation and perpetration in the general population and among people with SMI. [10, 16, 22, 35] A recent systematic review on violence perpetration by people with psychosis found that being a victim of violence was associated with six-fold higher odds of being a perpetrator. [75] Several mechanisms have been suggested to explain this association, some of which apply to those without mental illness; for example, living in socially deprived neighbourhoods, where social and economic conditions foster violence norms; [120] or involvement in a violent subculture, especially one involving drug misuse [16, 63, 121]. Other proposed mechanisms are specific to mental illness, for example acutely ill patients displaying disturbed or psychotic behaviour, which may evoke hostile reactions and attempts at social control from others, leading in turn to conflict and mutual violence. [22] In this review, diagnosis and positive symptoms were not associated with the risk of victimisation, in contrast to the strong associations found with substance misuse, homelessness and violence perpetration. Therefore, there was greater support for risk factors shared with the general population than for illness-specific factors.

Childhood abuse is associated with greater victimisation risk in adulthood [83, 122]. People with SMI have high rates of childhood abuse, [84] and this may be an important risk factor in their vulnerability to violence as adults. Only two of the included studies assessed childhood abuse, and both found an association with victimisation risk. There is a need for greater understanding of the mechanisms linking early abuse to later vulnerability; which are likely to include long-term effects of insecure attachment, poor self-esteem, and interpersonal difficulties in forming trusting relationships, setting boundaries and managing conflict. [123]

These mechanisms are likely to be present in any victims of childhood abuse, but those who develop severe mental illness have additional challenges in forming and maintaining supportive relationships, due to the direct and indirect effects of their illness. [72] This may compound the psychological and social effects of childhood abuse.

2.5.3 Strengths and limitations

Strengths of this review include its clear aims and objectives, rigorous evaluation of study quality (rated by two researchers independently) and a detailed exploration of potential sources of heterogeneity. It is the first review to quantitatively synthesise data on risk factors. The grouping of risk factors into conceptually-related domains facilitated interpretation of findings.

Due to time and resource limitations, the literature search was conducted for studies published over a limited a time period, with identification of earlier studies relying on published systematic reviews. Therefore, it is possible that some earlier studies may have been missed. This is likely to be mitigated by screening of reference lists from more recent studies. Authors and experts were not contacted. The review only included studies published in English, so may have missed some relevant studies published in other languages, although reference screening was used to mitigate this problem. A further limitation is that data checking from abstracts and data extraction for the systematic review were conducted by a single researcher- whereas ideally this would have been done by two independent researchers. This may have resulted in deviations from the study protocol in terms of which studies were included and errors in the extracted data- which could bias the findings. The study settings, populations and methods were highly varied. The pooled prevalence estimates had high levels of statistical heterogeneity where the findings from individual studies were more different from each other than would be expected by chance. As discussed by Kirkwood et al, there is disagreement about whether combining study estimates in the presence of heterogeneity using random effects meta-analysis is valid, although *“it can be argued that random-effects meta-analysis is simply a means of combining ‘apples and pears’: forming an average of estimates of quantities whose values we know to be different from each other”*. [98] Therefore, it

can be argued that in this review, the pooled prevalence estimates were unlikely to be a valid summary of individual study findings, and the individual study estimates need to be inspected. It is of note that the risk factor meta-analyses had little or moderate heterogeneity, so these meta-analyses may have greater validity. There was no evidence for publication bias for comparative studies.

Again, as discussed by Kirkwood et al, whilst the summary estimates of a random-effects meta-analysis may not be valid in the presence of heterogeneity, *“it is clear that the investigation of sources of heterogeneity may yield important insights”*. [98] Although a broad range of potential sources of heterogeneity were explored (related to study setting, design, methods and quality) none explained the heterogeneity in violence prevalence estimates. This might be either because the true prevalence varies across settings and populations, or because there were multiple differences in design, methods and quality across studies that could not be adequately accounted for in the analyses exploring heterogeneity sources. The meta-analysis of risk factors adjusted for different confounders is problematic and difficult to interpret. The adjusted odds ratio meta-analyses were subject to bias, because some studies did not report adjusted ORs for factors which were not independently associated with victimisation (i.e. in some studies, all factors which were crudely associated with the outcome were initially included in multivariate models, but the final model presented in the paper only retained those factors which were independently associated with the outcome. This means that ‘negative findings’ or findings on a lack of association in the multivariate models, were under-reported across studies. Future studies using individual patient data meta-analysis may address this limitation.

The quality of many included studies was limited by non-random recruitment, low response rates and brief, poorly validated violence measures. Many had a primary focus other than victimisation, with victimisation included in a battery of measures on quality of life, or investigated as a risk factor for violence perpetration. Only two studies reported separate estimates for domestic and community violence, so the relative extent of these problems is unknown. Comparative studies were mostly low quality; many compared local SMI populations to national general population data without any adjustment for individual or area confounders. Other studies adjusted

not only for potential confounders but also for factors that could lie on the causal pathway (e.g. substance misuse) and may therefore have underestimated the relative risk. None of the studies reported correlates of sexual violence only; but rather reported risk factors for either physical violence only, or physical and sexual violence combined. Therefore, it was not possible to compare risk factors for physical and sexual violence.

2.5.4 Conclusion

To my knowledge, this review is the most up to date synthesis of studies on recent violence against people with SMI, and the only review which quantitatively synthesised the evidence on risk factors for victimisation in this population. The review synthesised evidence from 26 studies, and found that between a fifth and a third of people with severe mental illness have experienced recent violence, regardless of their age, gender, socio-economic position or diagnosis. Many of the risk factors for victimisation among people with SMI are shared with the general population, including violence perpetration, substance misuse and homelessness. There is a lack of evidence on the extent and risk factors for domestic versus community violence; and a lack of high quality evidence on the extent of victimisation among people with SMI compared with the general population. Future studies should address these evidence gaps, in order to guide clinical interventions and national policy on violence prevention in this group.

The next chapter focuses on any violence against people with disability (due to mental or physical illness) using secondary analysis of the British Crime Survey; with Chapter 4 presenting greater detail on partner violence against this group.

Chapter 3. Violence against people with disability in England and Wales-findings from the 2009/10 British Crime Survey

3.1 Abstract

Background: The recent World Report on Disability highlighted violence as a leading cause of morbidity among disabled people. However, we know little about the prevalence of different types of violence against people with disability and associated health/economic costs. The recent introduction of disability measures into the England & Wales victimisation survey provided an opportunity to address this gap.

Methods: Analysis of the 2009/10 British Crime Survey (BCS), a nationally representative cross-sectional survey of 44,398 adults living in residential households in England & Wales. Using multivariate logistic regression, the relative odds of being a victim of past-year violence (physical/sexual domestic or community violence) was estimated in people with disability due to mental illness compared to those with disability due to other illnesses and to those without disability, after adjusting for socio-demographics, behavioural and area confounders.

Results: 1256/44398 (2.4%) participants had one or more disability including mental illness ('mental illness') and 7781(13.9%) had one or more disability excluding mental illness ('non-mental disability'). Compared with the non-disabled, those with mental illness had adjusted relative odds (aOR) of 3.0 (95% confidence interval (CI) 2.3-3.8) and those with non-mental disability had aOR of 1.8 (95% CI: 1.5-2.2) of being a victim of past-year violence (with similar relative odds for domestic and community violence). Disabled victims were more likely to suffer mental ill health as a result of violence than non-disabled victims. The proportion of violence that could be attributed to the independent effect of disability in the general population was 7.5% (CI 5.7-9.3%), at an estimated excess cost of £1.51 billion. The main study limitation is the exclusion of institutionalised people with disability.

Conclusions: People with disability are at increased risk of being victims of domestic and community violence, and of suffering mental ill health once victimised. The significant associated public health and economic burdens call for an urgent assessment of the causes of this violence, and national policies on violence prevention in this vulnerable group.

3.2 Introduction

This chapter focuses on any violence against people with disability (due to mental or physical illness) compared with the general population, using secondary analysis of the British Crime Survey.

There are more than a billion people with physical or mental disability worldwide, comprising around 15% of the global population. [19] The recent World Report on Disability highlights violence against people with disability as a major risk factor for ill health in this group. [19] In the non-disabled population, violence contributes significantly to the global burden of injuries, physical and mental health problems, substance misuse and death. [16] The health impact of violence among the disabled is likely to be compounded by pre-existing morbidity and difficult social circumstances. [17]

The Equality and Human Rights Commission found evidence for high levels of violence against people with disability, but called for “definitive data...on the scale, severity and nature of disability harassment”. [124, 125] A recent systematic review found that past-year violence was experienced by 24% of people with mental illness and 3% of people with non-specific impairment (with pooled adjusted odds ratios of 3.9 and 1.5 respectively compared with the non-disabled), but highlighted important gaps in the evidence base. [11] I identified three key unanswered questions of relevance to policy makers, which are addressed in this study. Firstly, it is unclear who among the disabled is most at risk, and what type of violence they are most likely to experience. [11] Past evidence suggested that those with mental illness were at particularly high risk, but this was largely based on comparing clinical samples of people with SMI to general population samples of people with self-defined physical disability. Secondly, there is little evidence on the health impact of violence in this group, which may be magnified by chronic illness and poor psychosocial resources. [37] Finally, we do not know what proportion of violence in the population as a whole is explained by disability-associated risk. Policy makers need answers to these questions in order to design and target cost-effective interventions.

In the UK, there are 10 million people living with a limiting disability. [126] The government recently recommended the addition of disability measures to major national surveys, in order to estimate unmet needs in this population. The British Crime Survey (BCS) introduced a measure of disability subtypes for the first time in 2009. In the BCS, disability is defined as self-reported limitations in day to day activities due to one or more of the following conditions which have lasted or are expected to last for a year or more:

- a. Mental health condition, such as depression
- b. Blindness, deafness or other communication impairment
- c. Mobility impairment, such as difficulty walking
- d. Learning difficulty or disability, such as Down's syndrome
- f. Long-term illness, such as Multiple Sclerosis or cancer
- g. Any other long-standing health condition or disability

The inclusion of a measure of disability and its subtypes in the British Crime Survey provided a timely opportunity to address evidence gaps on victimisation among the disabled population.

3.3 Aims and objectives

This study aimed to address key research gaps on the epidemiology of violence against people with disability using nationally representative data. The objectives were to address the following questions:

1. Are people with disability at greater risk of violence (and violence subtypes) than those without disability, and do people with mental illness have a greater risk than those with physical /other disabilities?
2. Do disabled victims experience more severe health problems following violence than non-disabled victims?
3. What proportion of violence victimisation in the population as a whole is attributable to the independent effect of disability, and what is the associated economic cost?

3.4 Methods

Analysis of data from the 2009/2010 British Crime Survey. [127]

3.4.1 Ethics approval

Data from the BCS is available to the academic community via the UK Data Archive (UKDA). A subset of this data (including data on domestic and sexual violence and on substance misuse) requires Special License approval, to ensure participant confidentiality. I was granted Home Office approval to access BCS Special License data for the purposes of this study. I did not seek additional ethics committee approval for this secondary data analysis.

3.4.2 The British Crime Survey: an overview

The BCS is a nationally representative cross-sectional survey of people living in private residential households in England and Wales. [128] It measures people's experiences of being a victim of personal crime (e.g. assault or robbery, affecting the survey respondent) or household crime (e.g. criminal damage or burglary, affecting the survey respondent or other household members) in the preceding 12 months; with the key aims of measuring victimisation extent and trends. It was first conducted in 1982, and has run on continuous basis since 2001. It was formerly run by the Home Office, but following a review of crime statistics by the National Statistician, responsibility for this survey was transferred to the Office for National Statistics in 2012. [42] Since then, it has been renamed the Crime Survey for England and Wales (CSEW). Recent surveys have been conducted by a private company (TNS-BMRB; Taylor Nelson Sofres-British Media Research Bureau) [129] on behalf of the ONS.

3.4.3 Design

The BCS is a repeat cross-sectional survey. It has a complex survey design, with stratification, clustering and unequal sampling probability. [130] It is designed to obtain a nationally representative sample of people living in private households, but it excludes people living in group residences or other institutions. The sample size is powered to estimate crime rates in each of 42 Police Force Areas (PFAs), with a

minimum target of 1000 participants per PFA (which involves over-sampling in less densely populated areas).

The sample has three stratification levels (Police Force Area (PFA), population density and Crime and Deprivation Index tertiles). The survey is partially clustered, with the degree of clustering dependant on the population density. In high density areas, the sample is not clustered, and households are the Primary Sampling Units (PSUs). In medium-density areas, the survey has a two-stage cluster design: 'Medium Super Output Areas' (MSOAs)¹ are sampled first, and then households are sampled within MSOAs. In low density areas the survey has a three-stage cluster design: MSOAs are sampled first, followed by sampling of Lower Super Output Areas (LSOAs)² within MSOAs, and then sampling of households within LSOAs.

Households are sampled using the Postal Address File as the sampling frame (the most comprehensive and widely used sampling frame for private residential households in England and Wales). In each household, all normally resident adults aged 16 or over are listed and one adult is selected at random for participation in the survey, with no replacement.

The ONS output data provides two sample weights: an individual weight (for use with individual-level crimes e.g. assaults) and a household weight (for use with household-level crimes e.g. burglaries). The weights aim to adjust for unequal sampling probabilities (e.g. over-sampling of police force areas with small population, the selection of one adult per household) and differential response rates (e.g. by age, gender, inner city residence).

3.4.4 Setting & participants

The BCS is representative of men and women aged 16 or over living in private residential household in England and Wales. People are eligible to participate in the BCS if they (a) are normally resident at sampled households (i.e. had lived there for more than six months of the preceding year) (b) have sufficient English language proficiency to complete the questionnaire. The survey excludes people living in

¹ Administratively-defined areas of around 7500 households

² Administratively-defined areas of around 1500 households

institutions or care homes. Since 2009, the survey has included a sample of children aged 10-15, but these data were not used in research reported in this thesis and will not be discussed further.

This study included participants aged 16 and above who took part in the April/2009-March/2010 BCS survey (when disability subtypes were first measured). Participants were excluded if they had missing data on disability or on survey design.

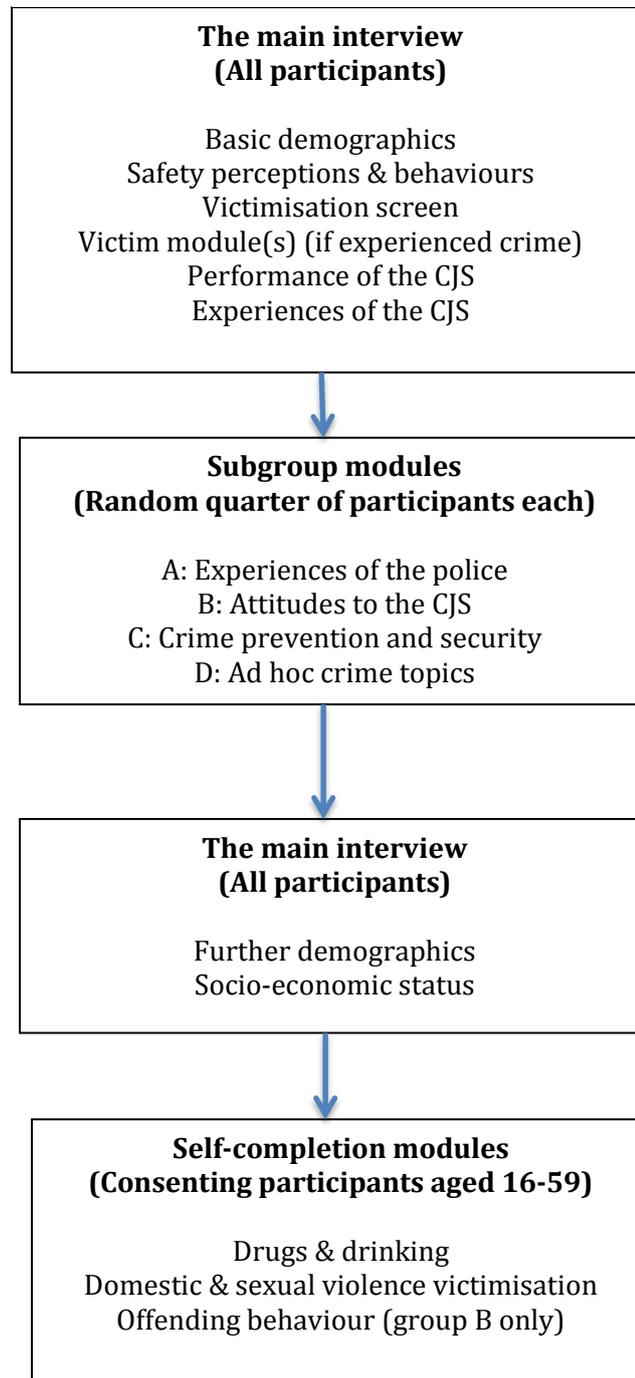
3.4.5 Survey structure and content

All data are obtained at a single interview. The interview schedule has a complex structure, as follows:

1. The main face-to-face interview, which is asked of the whole sample
2. Four subgroup modules within the main interview, each of which is asked of a random quarter of participants (in order to reduce participant burden)
3. An optional self-completion questionnaire (on the more sensitive topics of domestic and sexual violence, drug and alcohol use and offending behaviour) which is asked of participants aged 16-59.

The structure and content of the interview are summarised in Figure 3-1. The complete questionnaire is available online via the UK Data Archive. [131]

Figure 3-1 British Crime Survey (BCS) interview structure



3.4.6 Interview procedures

Lay interviewers conduct face-to-face interviews in respondents' homes using computer-assisted personal interviewing, where interviewers enter responses on laptops. All respondents are asked a series of questions to screen whether they have been a victim of personal or household crimes in the preceding 12 months. Those who report a crime incident are asked detailed questions about this, using the victimisation module. If a respondent reports more than one incident in the screener, these are ordered by severity and details are asked about each, up to a maximum of six incidents. Each incident is then coded manually into one of more than 80 codes (e.g. common assault, robbery), following a highly structured coding manual. [132] The different incident codes are then grouped into related categories (e.g., violence, criminal damage).

The self-completion questionnaire, which all participants aged 16-59 are invited to complete, asks about the sensitive topics of domestic and sexual violence, substance abuse and offending behaviour. Participants who agree to complete this are given the laptop, so they can read the questions and enter the responses themselves, after which their answers are hidden from the interviewer. Self-completion is used to ensure confidentiality and privacy when answering questions on sensitive topics. In past surveys, data on domestic and sexual violence was available for about 80% of those eligible to complete this questionnaire. Older people, ethnic minorities and those from deprived socio-economic backgrounds were less likely to complete this module. [133]

Figure 3-2 Definition of study measures

Exposure: disability

Disability was defined as any ‘long-standing physical or mental health conditions or disabilities that have lasted or are expected to last 12 months or more and which limit day to day activities’, including:

- a. Mental health condition, such as depression
- b. Blindness, deafness or other communication impairment
- c. Mobility impairment, such as difficulty walking
- d. Learning difficulty or disability, such as Down’s syndrome
- f. Long-term illness, such as Multiple Sclerosis or cancer
- g. Any other long-standing health condition or disability.

This was operationalized into a three-level exposure variable:

1. No disability
2. One or more disabilities excluding mental illness (‘non-mental disability’)
3. One or more disabilities including mental illness (‘mental illness’)

Outcome: violence victimisation

The main outcome was being the victim of any violence in the past year, defined as being the victim of:

- a. Actual physical violence (physical assaults, robberies, attempted robberies or snatch thefts)
- b. Actual sexual violence (rape, attempted rape, indecent assault or unwanted sexual touching)
- c. Threats of physical violence
- d. Threats of sexual violence.

Secondary outcomes examined three different sub-grouping of the above:

1. Actual violence (a&b) and threatened violence (c&d)
2. Physical violence (a&c) and sexual violence (b&d)
3. Domestic violence (a-d, if perpetrated by family members, partners or ex-partners) and community violence (a-d, if perpetrated by strangers or acquaintances)

Covariates

- a. Personal and household socio-demographic measures: age, sex, ethnicity, marital status, education, employment, social class, housing tenure, household composition
- b. Personal behaviours: frequency of pub & club visits, alcohol misuse, drug misuse
- c. Area measures: region, urbanicity, inner city residence, area deprivation (using Multiple Deprivation Index quintiles), and area socio-demographic composition (using Output Area Classification)

Health impact of violent offences (offence-based measure)

- a. Physical injury
- b. Receipt of medical attention
- c. Anxiety / panic attacks or depression following the incident
- d. Being emotionally affected ‘very much or quite a lot’ versus ‘very little’ by the incident.

3.4.7 Study measures

The study measures are detailed in Figure 3-2 and discussed below.

3.4.7.1 Main exposure: self-reported disability

The main exposure was self-reported limiting disability, as reported by participants in the face-to-face interview.

This was defined as any ‘long-standing physical or mental health conditions or disabilities that have lasted or are expected to last 12 months or more and which limit day to day activities’. This comprised one or more of the following six disability subtypes: .

- a. Mental health condition, such as depression
- b. Blindness, deafness or other communication impairment
- c. Mobility impairment, such as difficulty walking
- d. Learning difficulty or disability, such as Down’s syndrome
- f. Long-term illness, such as Multiple Sclerosis or cancer
- g. Any other long-standing health condition or disability

This was operationalised into a three-level disability measure: (i) no disability (ii) one or more disabilities, excluding disability due to mental illness as defined in (a) above (in this study termed ‘non-mental disability’) (iii) one or more disabilities, including disability due to mental illness as defined in (a) above (in this study termed ‘mental illness’).

3.4.7.2 Primary outcome: past-year victimisation

The main outcome was being the victim of any violence in the past year; defined as any actual or threatened physical or sexual assault, whether perpetrated by partners, family members, acquaintances or strangers. See Figure 3-2 for detailed definitions of violence subtypes.

Violent victimisation was measured in both the main interview (asked of all participants) and the optional self-completion module (asked of those aged 16-59, and typically completed by 80% of those eligible). [134] Of note is that community physical violence was only asked about in the main interview, whilst domestic

physical violence, and sexual violence by any perpetrator, were asked about in both the main interview and the self-completion questionnaire. Two sets of analyses were performed:

1. An analysis of data on all participants aged 16 and above, using victimisation data from the face-to-face interview only ('main-interview analyses')
2. An analysis of data on the subgroup of people aged 16-59 who answered the self-completion questionnaire, using victimisation data from the face-to-face interview and the self-completion questionnaire ('self-completer analyses').

The former included all participants across the age range. The latter included a younger subgroup with an additional measure of sexual and domestic violence.

3.4.7.3 Secondary outcomes

Secondary outcome measures included the physical and emotional impact of violence incidents, and the estimated economic cost of these incidents.

The impact of violent incidents was measured in the 'victimisation module', which obtained details of up to six incidents per participant. In this study, impact was defined as the victim reporting one or more of the following as a result of the incident: sustaining physical injuries, receiving medical attention, experiencing anxiety, depression or panic attacks, and being highly emotionally affected by the incident (as detailed in Figure 3-2).

The economic cost of violent incident among those with disability was estimated by combining (a) prevalence and population-attributable fraction (PAF) estimates from this study, (b) population census data from the ONS and (c) estimates of the unit costs of crime from the Home Office (as detailed in the analysis section). The unit costs of crime were first developed by the Home Office research directorate in 2000 [135], and most recently updated in 2011. [136] They are derived from estimates in the general population, and include the following components [137]:

- Cost to healthcare

- Cost to the criminal justice system
- Lost economic output
- Cost to victims from the physical and emotional impact of crime

The Home Office has provided unit costs for five categories of violent crime that map onto incident codes in the BCS (as detailed in table Table 3-7).

In this study the cost estimates did not include violence disclosed in the self-completion module, since there are no available up to date unit cost estimates for these experiences. [138, 139] This follows the methodology used by the Home Office, where the published cost of crime only includes violence disclosed in the main module. [137]

3.4.7.4 Confounders and interaction terms

In terms of the association between disability and victimisation, the following potential confounders were identified from past studies [16, 140]: age, sex, social deprivation (at the individual, household and area levels) and substance misuse. The relevant variables are detailed in Figure 3-2. Potential interaction terms were disability interacting with sex and age.

In terms of the impact of violence incidents in those with vs. without disability, the potential confounders were age, sex and offence type (physical threats, sexual threats, physical assaults, sexual assaults).

3.4.8 Statistical analysis

A design-based analysis was carried out, which took into account the complex survey design, including weighting, clustering and stratification. The analysis was conducted using the ‘svy’ suite commands in Stata, version 11.0 (Stata Corporation, East College Station, TX USA).

3.4.8.1 Descriptive statistics

Descriptive statistics were used to summarise the sample socio-demographics among those with and without a disability. Continuous variables were summarised as mean (standard deviation) and categorical variables were summarised as % (n).

3.4.8.2 Prevalence and relative odds

All prevalence estimates were weighted (using the individual-level weights provided with the microdata), and 95% confidence intervals were estimated using robust standard errors to take into account the clustered nature of the data. Hypothesis tests were based on adjusted Pearson's tests (for bivariate analyses) or adjusted Wald tests (for multivariate logistic regression analyses). All significance tests were two-tailed.

The population-weighted prevalence of any violence victimisation was estimated for each of the six disability subtypes, as well the age / sex adjusted odds ratio of victimisation among those with a given disability type compared to those without that disability.

The population-weighted prevalence and the age/sex standardised prevalence of violence were estimated in those with no disability, non-mental disability and mental illness; using the whole study sample as the standard population. The odds ratios (ORs) for violence and its subtypes were estimated using multivariate logistic regression (a) adjusting for age and sex (b) adjusting for the other covariates detailed in Figure 3-2. In model (b), co-variables were added in three sequential blocks: individual socio-demographics, area characteristics and behavioural factors. Within each block, likelihood ratios tests (LRTs) were used to test for the association of the relevant variable with the outcome, and variables were retained in the model if they were associated with the outcome at the 5% significance level. The final model was tested for interaction between disability and sex and disability and age using the interaction effect Wald test. It was then tested for specification errors (using the Stata 'linktest' command) and for goodness of fit (using the Hosmer-Lemeshow test, and the associated Stata 'lfit' command).

The relative odds of physical and mental ill health following violent incidents experienced by those with and without disability was estimated using multivariate logistic regression model, adjusting for age, sex and offence type. The STATA 'svy' suite commands were used to take into account clustering of offences within individuals.

3.4.8.3 PAF and cost estimates

Greenland's methodology [141, 142] was used to estimate the proportion of violence that can be attributed to the independent effect of disability (the population attributable fraction or PAF), both in the general population and among people with disability. Greenland's methodology is recommended for estimating adjusted attributable risk (where the effect of other factors is taken into account). [142] It employs a maximum likelihood approach based on the logistic model. The analyses were conducted using the Greenland-based 'punaf' command in Stata (V12.0 SE), which estimates PAFs on the basis of parameter estimates from multivariate logistic regression models. [143] To estimate the burden of disability-related violence at the population level, the 2009 Office for National Statistics population figures [144] were combined with this study's estimates of (a) disability prevalence, (b) violence prevalence and (c) PAFs to estimate:

1. The total number of people with disability who experienced violence (calculated as population total x estimated prevalence of disability x estimated prevalence of violence amongst those with disability; summed across 5 age-group strata to improve precision of estimates)
2. The total number of people who experienced violence attributable to the independent effect of disability (calculated as the estimate from (a) above x estimated PAF amongst people with disability).

Finally, the financial cost of violence attributable to disability in England & Wales (E&W) in 2009 was estimated. Violence incidents were grouped into the relevant cost categories. The total cost of crime among those with disability was calculated by multiplying the estimated number of incidents experienced by people with disability in the study sample x population weights for these incidents x Home Office unit cost estimates. The cost attributable to the effect of disability was calculated by multiplying the estimate from (a) above x this study's PAF estimate for main-module actual violence. A cost range was estimated using confidence intervals for the number of incidents and PAF. No confidence intervals were provided with the unit costs, and could not be obtained from the Home Office, so cost uncertainty was not included.

3.4.8.4 Missing data, bias and sensitivity analyses

The frequency of missing data was examined and described for all covariates which were planned for inclusion in the logistic regression models. Only one variable had missing data for more than 1% of participants (household income, missing for 18% of participants), so this was not included in the models as there were alternative measures of social deprivation that could be used.

To assess for participation bias in the take-up of self-completion questionnaire, the characteristics of those who completed this module were compared with those who were unwilling or unable to do so, using chi-squared tests for categorical variables and t-tests for continuous variables.

In the BCS, nearly a third of participants with disability had two or more disability types (mean $n=1.4$, range 1-6). Sensitivity analyses were carried out to assess whether any excess risk of victimisation among people with mental illness was due to disability type, the number of co-morbid disabilities or the severity of functional limitation.

3.4.8.5 Study power

In this secondary analysis the sample size was determined by the available data. Given the sample sizes for those without disability ($N=35,361$) and those with mental illness ($N=1256$), a prevalence of past-year violence in those without disability of 5%, and an alpha error level of 5%, the study had 95% power to detect a 50% difference in the prevalence of victimisation among those with mental illness compared to those without disability (using a two-tailed hypothesis test). [145] A 50% difference in prevalence would be a conservative estimate, since past systematic reviews indicated at least a two-fold victimisation risk for those with mental illness. [11]

3.4.9 Data management

BCS data is available via the UK Data Archive and the ONS. Data is provided in five separate linkable datasets: (a) main interview, (b) victimisation module, (c) self-completion alcohol & drugs module, (d) self-completion domestic & sexual violence module and (e) low-level geography variables (with details on respondents' areas of

residence, down to the level of lower super output areas). The victimisation module is reported at the level of incidents, with up to six entries per participant. All others are reported at the individual level. Datasets were merged as appropriate for statistical analysis.

3.5 Results

3.5.1 Participant flow and response rates

In 2009/10, 44638 people participated in the BCS. The response rate was 76% (with significantly lower participation in those aged under 35 and over 60, in men and in London). [10] 44398/44638 (99.5%) of BCS respondents were included in this analysis, after excluding those who had missing survey design data (n=149), or missing disability data (n=91). 28225/44398 (64%) were aged under 60, and hence eligible for the self-completion questionnaire. Of those, 22874/28225 (81%) completed that questionnaire, with significantly lower participation in older people, men, ethnic minorities, the socially deprived and those with disability (69% vs. 82% of those with and without disability respectively; $p < 0.001$).

3.5.2 Socio-demographics and prevalence of disability

Sample socio-demographic characteristics are shown in Table 3-1, and largely reflected the general population. 9037/44398 participants (16.2%) had at least one limiting disability; 7781 (13.9%) had one or more disabilities excluding mental illness ('non-mental disability') and 1256 (2.4%) had one or more disabilities including mental illness ('mental illness'). Those with and without disabilities differed on most socio-demographic characteristics, with disabled people being significantly older (mean age 61 vs. 44, $p < 0.001$), and more likely to be female and socially deprived (Table 3-1).

Table 3-1 Sample socio-demographics and disability characteristics

	Non-disabled (N=35361) % (n)	Disabled (N=9037) % (n)
Socio-demographic characteristics¹		
Mean age (sd) ²	43.6 (sd 0.44)	61.0 (sd 0.52)
Female ²	50.3 (19187)	56.0 (5225)
White ²	88.1 (32498)	92.7 (8604)
Married/cohabiting ²	63.7 (20914)	56.2 (3921)
Living alone ²	11.7 (8054)	29.0 (4132)
Has degree/diploma ²	36.6 (12670)	18.9 (1697)
Employed ²	66.9 (22394)	20.9 (1591)
Renting social housing ²	12.0 (4510)	30.4 (2908)
Living in urban area	79.0 (26051)	79.3 (6800)
Living in an inner city ²	10.0 (2665)	12.0 (868)
Living in area in lowest deprivation quintile ²	18.2 (5986)	28.2 (2454)
Disability characteristics		
	Not applicable	
Mobility impairment		52.0 (4930)
Sensory impairment		14.4 (1392)
Long-term physical illness		9.3 (815)
Learning disability		2.7 (170)
Mental health condition		14.5 (1256)
Other		51.0 (4563)
<i>(other only)</i>		26.0 (2236)
One or more disability excluding mental illness		85.5 (7781)
One or more disability including mental illness		14.5 (1256)
Severe functional disability		28.4 (2692)
Two or more disabilities		34.5 (3202)

1. None of these variables had missing values for >1% of the sample.
2. p for difference <0.05

3.5.3 Prevalence and odds of victimisation by each disability type

Prevalence and odds of any violence for each of the disability subtypes are shown in Figure 3-3 and Table 3-2. From the main interview analyses, the age / sex adjusted relative odds for victimisation were highest amongst those with mental illness (aOR 2.7; CI 2.2-3.4) and long-term physical illness (aOR 2.6, CI (1.8-3.7)), followed by those with mobility problems (aOR 1.9, CI (1.6-2.3) and 'other' disability (aOR 2.0, CI 1.7-2.4). There was no association between violence victimisation and either sensory impairment (aOR 1.3, CI 0.9-2.0) or learning disability (aOR 0.8, CI 0.4-1.5) at the 5% significance level. There were similar associations in the self-completer analyses.

Figure 3-3 Adjusted odds for any violence victimisation by each disability type

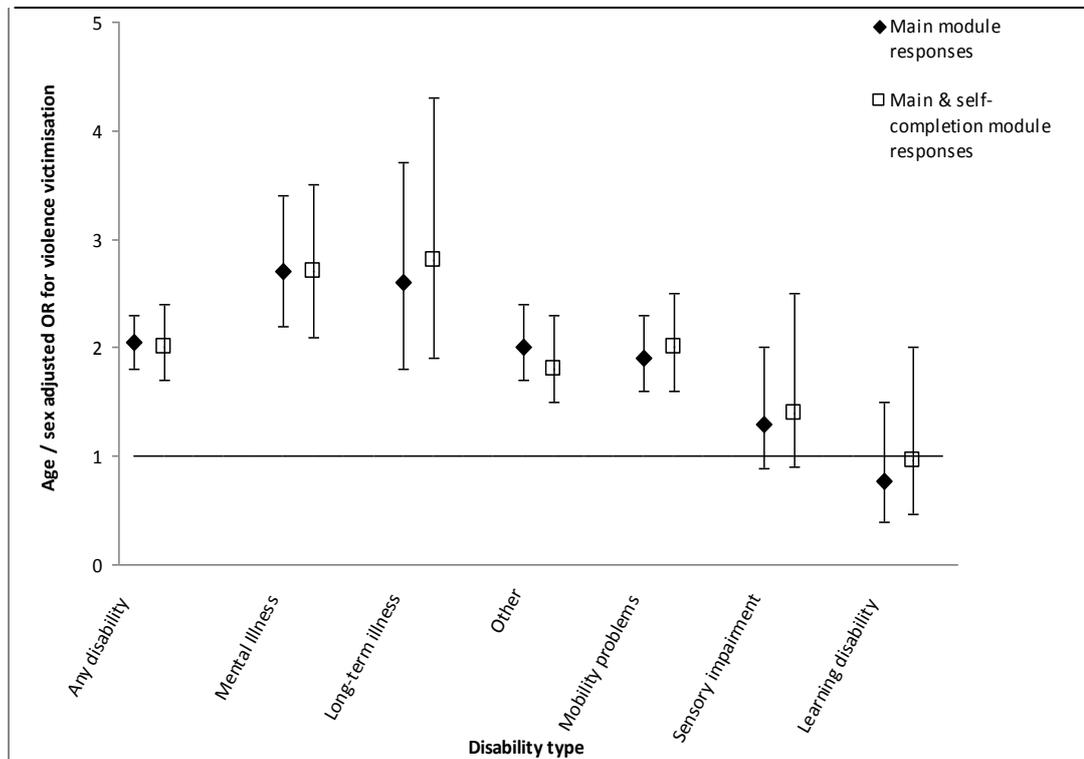


Table 3-2 Prevalence and odds of any past-year violence victimisation by each disability type

Disability type	Main interview analyses		Self-completer analyses		
	Violence prevalence ¹ (n/N)	Age / sex adjusted OR (95% CI) ²	% with SC data of those eligible for SC module (n/N)	Violence prevalence ¹ (n/N)	Age / sex adjusted OR (95% CI) ²
No disability	5.53 (1653/35361)	1	82 (20585/24941)	9.6 (1868/20585)	-
Any disability	5.23 (447/9037)	2.1 (1.8-2.3)	69 (2289/3314)	14.1 (352/2289)	2.0 (1.7-2.4)
Mental Illness	11.6 (157/1256)	2.7 (2.2-3.4)	71 (676/959)	20.1 (148/676)	2.7 (2.1-3.5)
Long-term illness	7.3 (50/815)	2.6 (1.8-3.7)	68 (232/342)	18.8 (43/232)	2.8 (1.9-4.3)
Mobility problems	3.8 (184/4930)	1.9 (1.6-2.3)	67 (840/1250)	12.9 (122/840)	2.0 (1.6-2.5)
Sensory impairment	2.9 (38/1392)	1.3 (0.89-2.0)	60 (171/283)	11.4 (26/171)	1.4 (0.9-2.5)
Learning disability	6.1 (12/170)	0.77 (0.39-1.5)	39 (55/141)	11.7 (11/55)	0.96 (0.46-2.0)
'Other'	5.5 (235/4563)	2.0 (1.7-2.4)	68 (1166/1713)	13.0 (163/1166)	1.8 (1.5-2.3)

1. Population-weighted prevalence

2. The baseline group was people without the given disability

3.5.4 Prevalence and odds of victimisation among those with no disability vs. non-mental disability vs. mental illness

Age and sex standardised prevalence of any past-year actual or threatened violence in those with no disability, non-mental disability and mental illness was 5.9, 9.3 and 13.2% respectively in the main interview analyses (Table 3-3 and Figure 3-4); and 9.9, 14.9 and 21.0% respectively in the self-completer analyses (Table 3-4 and Figure 3-5). A similar gradient was observed across all violence subtypes.

For all violence subtypes, and in both sets of analyses, the age/sex adjusted OR was higher in those with disability compared to those without (at the 1% significance level), and higher in those with mental illness than those with non-mental disability (at the 5% significance level). Across violence subtypes, those with non-mental disability had nearly double the odds and those with mental illness had nearly triple the odds of violence compared with the non-disabled after adjusting for age and sex. Additional adjustment for a range of individual, household and area factors resulted in only minimal changes to the OR estimates, except for a sizeable reduction in the OR of domestic violence, particularly among those with mental illness (Table 3-3 and Table 3-4)

There was no interaction between disability and age or sex in relation to violence risk. Regardless of disability, men were more likely to be victims of physical and community violence (53 & 58% of victims respectively; $p < 0.05$), whilst women were much more likely to be victims of sexual and domestic violence (83 & 71% of victims respectively; $p < 0.001$). Across all violence types, around 80% of the violence was perpetrated by men, 10% by women and 10% by both men and women.

Only 15% of those who reported sexual violence and 25% of those who reported domestic violence in the self-completion questionnaire also reported these experiences in the main interview, with no differences in disclosure rates by disability.

Logistic regression diagnostics found no evidence for model mis-specification ($p = 0.65$ for the $_hatsq$), and there was evidence from the Hosmer-Lemeshow test that the model fitted the data well ($p = 0.33$).

Table 3-3 Prevalence and odds of violence victimisation by disability (main interview measures)

	n/N	% of victims with violence subtype	Population-weighted prevalence	Age/sex standardised prevalence (CI)	OR adjusted for age & sex (CI)	Fully adjusted OR (CI) ¹
Any violence						
No disability	1653/35361	100	5.5 (5.2-5.9)	5.9 (5.6-6.2)	1	1
Non-mental disability	290/7781	100	4.1 (3.6-4.7)	9.3 (7.4-11.3)	1.8 (1.5-2.1)	1.8 (1.5-2.2)
Mental illness	157/1256	100	11.6 (9.7-14.0)	13.2 (10.5-16.0)	2.9 (2.3-3.7)	3.0 (2.3-3.8)
<i>Total</i>	<i>2100/44398</i>	<i>100</i>	<i>5.5 (5.2-5.8)</i>			
Actual violence						
No disability	970/35361	62	3.4 (3.2-3.7)	3.7 (3.4-4.0)	1	1
Non-mental disability	171/7781	57	2.4 (2.0-2.9)	5.8 (4.2-7.4)	1.9 (1.6-2.4)	1.9 (1.5-2.4)
Mental illness	97/1256	60	7.0 (5.4-9.0)	8.7 (6.2-11.3)	3.1 (2.3-4.2)	3.0 (2.2-4.2)
<i>Total</i>	<i>1238/44398</i>	<i>61</i>	<i>3.4 (3.1-3.6)</i>			
Threats of violence						
No disability	771/35361	45	2.5 (2.3-2.7)	2.6 (2.4-2.8)	1	1
Non-mental disability	131/7781	45	1.9 (1.5-2.2)	4.1 (2.8-5.5)	1.5 (1.2-1.9)	1.6 (1.3-2.0)
Mental illness	72/1256	45	5.2 (3.9-6.9)	5.3 (3.7-6.8)	2.4 (1.8-3.3)	2.7 (2.0-3.8)
<i>Total</i>	<i>974/44398</i>	<i>45</i>	<i>2.5 (2.3-2.7)</i>			
Physical violence						
No disability	1617/35361	98	5.4 (5.1-5.7)	5.7 (5.4-6.1)	1	1
Non-mental disability	286/7781	99	4.1 (3.6-4.7)	9.2 (7.3-11.1)	1.8 (1.5-2.1)	1.8 (1.5-2.2)
Mental illness	147/1256	94	11.0 (9.0-13.3)	12.7 (9.9-15.5)	2.8 (2.2-3.6)	2.9 (2.2-3.7)
<i>Total</i>	<i>2050/44398</i>	<i>98</i>	<i>5.4 (5.1-5.6)</i>			
Sexual violence						
No disability	43/35361	2.4	0.14 (0.09-0.20)	0.16 (0.10-0.22)	1	1
		1.3		0.22 (-0.06-0.51)		
Non-mental disability	5/7781	0.06	0.06 (0.02-0.14)	0.51	1.2 (0.4-3.3)	1.2 (0.4-3.8)
Mental illness	13/1256	8.0	0.93 (0.50-1.7)	0.84 (0.17-1.52)	7.5 (3.7-15.1)	7.2(3.5-15.0)
<i>Total</i>	<i>61/44398</i>	<i>2.7</i>	<i>0.15 (0.11-0.20)</i>			
Stranger/acquaintance violence						
No disability	1440/35361	92	5.0 (4.7-5.4)	5.4 (5.0-5.7)	1	1
Non-mental disability	244/7781	85	3.5 (3.0-4.0)	8.0 (6.2-9.8)	1.6 (1.4-1.9)	1.7 (1.4-2.1)
Mental illness	118/1256	81	9.4 (7.5-11.7)	11.0 (8.2-13.8)	2.6 (2.0-3.4)	2.8 (2.1-3.7)
<i>Total</i>	<i>1802/44398</i>	<i>90</i>	<i>4.9 (4.7-5.2)</i>			
Domestic violence						
No disability	226/35361	9	0.52 (0.44-0.61)	0.56 (0.47-0.65)	1	1
Non-mental disability	43/7781	14	0.60 (0.41-0.87)	1.4 (0.73-2.0)	2.7 (1.8-4.2)	1.5 (1.1-2.0)
Mental illness	43/1256	22	2.60 (1.9-3.6)	2.8 (1.8-3.9)	5.2 (3.5-7.8)	2.5 (1.8-3.3)
<i>Total</i>	<i>312/44398</i>	<i>11</i>	<i>0.58 (0.51-0.66)</i>			

1. OR adjusted for age, sex, ethnicity, marital status, individual and household social deprivation, substance misuse and area factors (see Figure 3-2 for details)

Figure 3-4 Prevalence and adjusted odds of violence victimisation by disability (main interview measures)

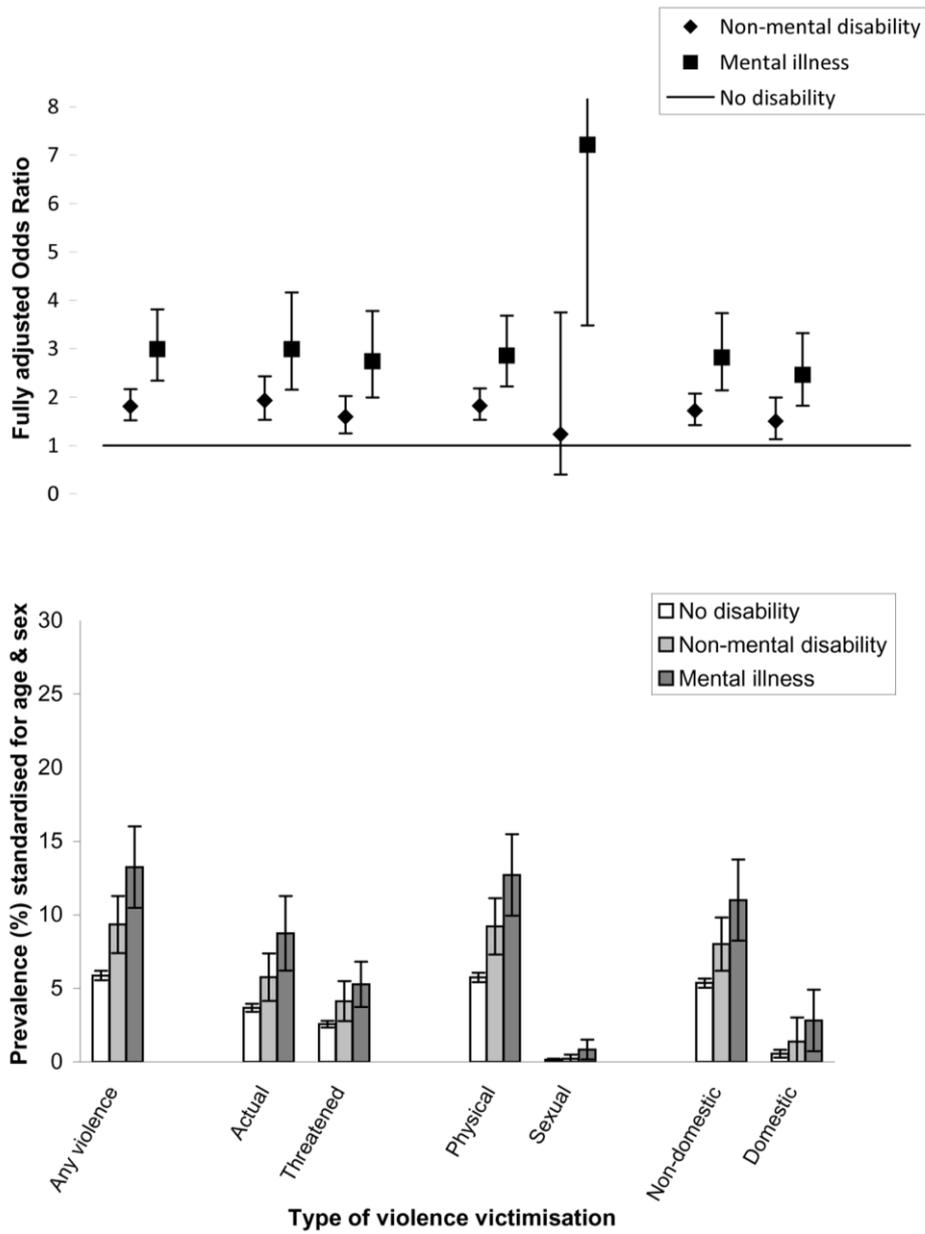
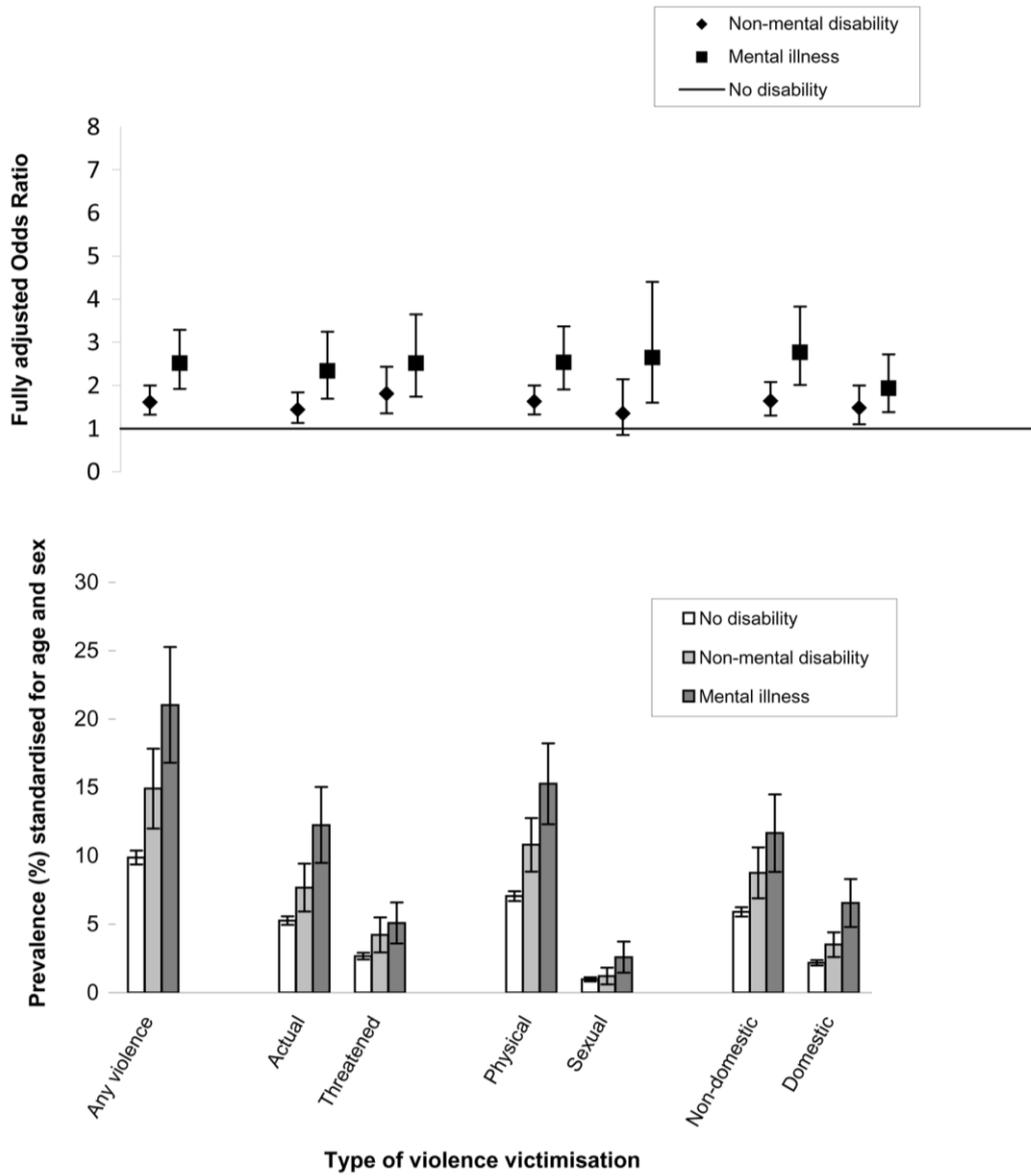


Table 3-4 Prevalence and odds of violence victimisation by disability (main interview & self-completion measures)

	n/N	% of victims with violence subtype	Population-weighted prevalence	Age/sex standardised prevalence (CI)	OR adjusted for age & sex (CI)	Fully adjusted OR (CI) ¹
Any violence						
No disability	1868/20585	100	9.6 (9.1-10.1)	9.9 (9.4-10.4)	1	1
Non-mental disability	204/1613	100	11.9 (10.1-13.8)	14.9 (12.0-17.8)	1.7 (1.4-2.1)	1.6 (1.3-2.0)
Mental illness	148/676	100	20.1 (16.7-23.9)	21.0 (16.8-25.3)	2.9 (2.2-3.7)	2.5 (1.9-3.3)
<i>Total</i>	<i>2220/22874</i>	<i>100</i>	<i>10.0 (9.5-10.5)</i>			
Actual violence						
No disability	1273/20585	68	6.6 (6.2-7.0)	5.3 (5.0-5.6)	1	1
Non-mental disability	133/1613	60	7.1 (5.8-8.6)	7.7 (5.9-9.4)	1.6 (1.3-2.0)	1.4 (1.1-1.8)
Mental illness	104/676	68	13.7 (10.8-17.3)	12.3 (9.5-15.0)	2.9 (2.2-3.9)	2.3 (1.7-3.3)
<i>Total</i>	<i>1510/22874</i>	<i>68</i>	<i>6.7 (6.4-7.1)</i>			
Threats of violence						
No disability	664/20585	35	3.3 (3.0-3.7)	2.7 (2.4-2.9)	1	1
Non-mental disability	79/1613	45	5.3 (4.1-6.7)	4.2 (2.9-5.5)	1.8 (1.4-2.4)	1.8 (1.4-2.4)
Mental illness	54/676	37	7.5 (5.5-10.1)	5.1 (3.6-6.6)	2.4 (1.7-3.4)	2.5 (1.7-3.7)
<i>Total</i>	<i>797/22874</i>	<i>36</i>	<i>3.6 (3.2-3.9)</i>			
Physical violence						
No disability	1701/20585	91	8.7 (8.2-9.2)	7.1 (6.7-7.4)	1	1
Non-mental disability	188/1613	92	10.9 (9.2-12.7)	10.8 (8.9-12.8)	1.7 (1.4-2.1)	1.6 (1.3-2.0)
Mental illness	133/676	92	18.3 (15.0-22.1)	15.3 (12.3-18.2)	2.9 (2.2-3.7)	2.5 (1.9-3.4)
<i>Total</i>	<i>2022/22874</i>	<i>91</i>	<i>9.0 (8.6-9.5)</i>			
Sexual violence						
No disability	243/20585	14	1.3 (1.1-1.5)	1.0 (0.8-1.1)	1	1
Non-mental disability	25/1613	12	1.4 (0.9-2.2)	1.2 (0.6-1.8)	1.5 (0.9-2.3)	1.4 (0.9-2.1)
Mental illness	32/676	19	3.7 (2.5-5.5)	2.6 (1.5-3.7)	3.1 (2.0-4.9)	2.7 (1.6-4.4)
<i>Total</i>	<i>300/22874</i>	<i>14</i>	<i>1.4 (1.2-1.6)</i>			
Stranger/acquaintance violence						
No disability	1242/20585	74	7.1 (6.6-7.6)	5.9 (5.6-6.2)	1	1
Non-mental disability	130/1613	66	7.8 (6.5-9.5)	8.8 (6.9-10.6)	1.6 (1.3-2.0)	1.6 (1.3-2.1)
Mental illness	88/676	65	13.1 (10.2-16.7)	11.7 (8.8-14.5)	2.6 (1.9-3.5)	2.8 (2.0-3.8)
<i>Total</i>	<i>1460/22874</i>	<i>73</i>	<i>7.3 (6.9-7.7)</i>			
Domestic violence						
No disability	714/20585	31	3.0 (2.7-3.3)	2.2 (2.0-2.4)	1	1
Non-mental disability	86/1613	39	4.6 (3.6-5.9)	3.5 (2.6-4.4)	1.9 (1.4-2.5)	1.5 (1.1-2.0)
Mental illness	74/676	43	8.6 (6.6-11.2)	6.6 (4.8-8.3)	3.1 (2.3-4.3)	1.9 (1.4-2.7)
<i>Total</i>	<i>874/22874</i>	<i>32</i>	<i>3.2 (3.0-3.5)</i>			

1. OR adjusted for age, sex, ethnicity, marital status, individual and household social deprivation, substance misuse and area factors (see Figure 3-2 for details)

Figure 3-5 Prevalence and adjusted odds of violence victimisation by disability (main interview & self-completion measures)



3.5.5 Health impact of violent incidents by disability

Health impact was reported for a total of 2477 violent incidents, which were experienced by 2100 people who reported violence in the main module questionnaire (see Table 3-5). There were no differences between those with and without disability in the mean number of incidents experienced (1.5), or in the proportion of incidents resulting in physical injury (28.0 %) or requiring medical attention (10.3 %). Those with disability were more likely to report that the incident led to anxiety, depression or panic attacks, and that they were emotionally affected ‘very much or quite a lot’ rather than ‘just a little’ by the incident (at the 1% significance level). These adverse mental health effects were commoner in those with pre-existing mental illness than those with other disability types (at the 5% significance level).

Table 3-5 Health impact of violent offences, by disability

	n/N of violent incidents	%	OR (CI) adjusted for age, sex and offence type
Injury			
Non-disabled	531/1951	28.4	
Non-mental disability	78/330	23.2	
Mental illness	72/196	32.0	
Total	681/2477	28.0	
<i>p for difference</i>		0.15	
Medical attention			
Non-disabled	173/1951	10.3	
Non-mental disability	34/330	10.5	
Mental illness	25/196	9.6	
Total	232/2477	10.3	
<i>p for difference</i>		0.96	
Emotionally affected 'quite a lot' or 'very much'			
Non-disabled	425/1878	19.8	1
Non-mental disability	111/319	32.6	1.8 (1.3-2.5)
Mental illness	90/188	44.5	2.5 (1.6-3.9)
Total	626/2385	22.4	
<i>p for difference</i>		<0.001	
Anxiety, depression or panic attacks			
Non-disabled	240/1879	10.6	1
Non-mental disability	63/319	16.3	1.5 (0.95-2.2)
Mental illness	92/188	42.2	4.9 (3.2-7.6)
Total	395/2386	12.8	
<i>p for difference</i>		<0.001	

3.5.6 Population attributable fraction and population estimates

PAFs and related population estimates are shown in Table 3-6. Using ‘main interview’ findings, which relate to people aged 16 and above, we estimated that the proportion of violence which could be attributed to the independent effect of disability was 7.5% (CI 5.7-9.3%) in the general population and 48.8% (CI 41.1-55.4%) among those with disability. Using ONS mid-2009 population figures for England and Wales it was estimated that in that year the independent effect of disability resulted in an estimated additional 184,000 people with disability experiencing any actual or threatened violence, including 116,000 disabled victims of actual violence. PAF estimates from the subgroup of people with self-completion data, which only relate to people aged 16-59, were lower (reflecting the lower prevalence of disability in this younger subgroup), but the estimated number of victims are higher (reflecting the higher prevalence of violence when both self-completion and main interview measures are taken into account).

The estimated total cost of violent victimisation by disability is shown in Table 3-7. In 2009, there were an estimated 235,000 violence incidents against people with non-mental disability, and 137,000 violence incidents against people with mental illness, at an estimated total annual cost of £1.7 billion and £1.3 billion respectively. The estimated cost attributable to the independent effect of disability is shown in Table 3-8. Given the estimated total cost of actual violence against people with any disability (£2.91 billion) and the estimated PAF in this group (51.8%), the cost attributable to the independent effect of disability was estimated at £1.51 billion (estimated range £0.35 billion-£3.01 billion).

Table 3-6 Population attributable fraction (PAF)¹ and estimated victim numbers in England and Wales in 2009

	PAF ¹ in whole population	PAF ¹ in those with disability	n all victims/N whole population (millions) ³	n disabled victims/N disabled population (millions) ⁴	n disabled victims attributable to disability (thousands) ⁵
Main interview analyses					
Any violence	7.5 (5.7-9.3)	48.8 (41.1-55.4)	2.44/44.55	0.378/7.22	184.0
Actual violence	7.8 (5.4-10.1)	51.8 (41.5-60.4)	1.49/44.55	0.224/7.22	115.9
Self-completer analyses					
Any violence	4.8 (3.3-6.3)	41.2 (32.4-48.9)	3.22/32.26	0.375/2.66	154.9
Actual violence	6.2 (4.2-8.1)	43.1 (33.3-51.4)	2.17/32.26	0.236/2.66	134.2

1. Proportion of violence victimisation attributable to the independent effect of disability
2. Based on ONS mid-2009 population figures and this study's estimates of violence prevalence in the whole population
3. Based on ONS mid-2009 population figures and this study's estimates of prevalence of disability and prevalence of violence among the disabled
4. Based on estimated number of disabled victims and PAF estimates among those with disability

Table 3-7 Annual number of violence incidents and associated cost, by disability

INCIDENT TYPE	Estimated N incidents in E&W in 2009 (1000s) ¹			Estimated total cost in £billions (range) ²		
	Non-disabled	Non-mental disability	Mental illness	Non-disabled	Non-mental disability	Mental illness
Serious wounding	91.5 (60.7-122.3)	16.9 (2.6-31.3)	11.5 (1.9-21.1)	2.4 (1.6-3.1)	0.4 (0.1-0.8)	0.3 (0.0-0.5)
Other wounding	336.8 (250.2-423.4)	28.9 (8.1-49.8)	26.1 (10.7-41.5)	3.3 (2.4-4.1)	0.3 (0.1-0.5)	0.3 (0.1-0.4)
Common assault	1128.1 (1003.2-1253.1)	139.3 (99.1-179.5)	60.7 (34.6-86.8)	2.0 (1.8-2.2)	0.2 (0.2-0.3)	0.1 (0.1-0.2)
Robbery	348.1 (271.1-425.1)	41.5 (26.5-56.4)	29.7 (11.9-47.5)	3.1 (2.4-3.7)	0.4 (0.2-0.5)	0.3 (0.1-0.4)
Sexual offences	70.1 (29.9-110.3)	8.7 (-1.6-19.1)	9.3 (0.8-17.7)	2.6 (1.1-4.1)	0.3 (-0.1-0.7)	0.3 (0.0-0.7)
Total	1974.7 (1615.2-2334.2)	235.3 (134.7-336.0)	137.3 (60.0-214.5)	13.3 (9.3-17.3)	1.7 (0.5-2.8) ³	1.3 (0.4-2.2) ³

1. Population-weighted BCS incident counts

2. Cost range was based on uncertainty of incident count estimates. No confidence intervals were provided with the unit costs and could not be obtained by the authors, so cost uncertainty is not included

Table 3-8 Annual cost of violent victimisation attributable to the independent effect of disability

	Total N incidents ¹	Total cost ¹	PAF for actual violence ² (violence attributable to independent effect of disability)	Cost attributable to disability (Total cost x PAF)
Non-disabled	1974.7 (1615.2-2334.2)	13.3 (9.3-17.3)	NA	NA
Any disability	372.6 (194.7-0.0)	2.91 (0.84-4.98)	51.8 (41.5-60.4)	1.51 (0.35-3.01)

1. Estimates from Table 3-7

2. Estimates from Table 3-6

3.5.7 Sensitivity analyses

Two additional analyses were carried out to separate out the effects of disability type, number of co-morbid disabilities and severity of functional limitation on violence risk. In the first analysis, the odds of violent victimisation among those with no disability were compared to those with (a) one non-mental disability (b) two or more disabilities excluding mental illness (c) mental illness only (d) two or more disabilities including mental illness. After adjusting for age and sex, the ORs for groups (a) to d) were 1.7 (CI 1.4-2.0), 2.1 (CI 1.6-2.8), 2.6 (CI 1.8-3.6) and 3.4 (CI 2.4-4.5) respectively (see Table 3-9).

The second analysis was limited to people with disabilities, and estimated the independent effects of the following on the risk of any violent victimisation, adjusting for age and sex: (a) each of the six chronic conditions measured in the BCS (b) the number of co-morbid conditions (c) the severity of functional limitation. Only mental illness was independently positively associated with violence (OR 1.51, CI 1.02-2.25, $p=0.04$) (see Table 3-10).

These findings suggest that differences between the groups defined as having disability with and without mental illness were due to the effect of mental illness itself, rather than to the differences between these groups in the number of co-morbid disabilities or the severity of functional limitation.

Table 3-9 Sensitivity analysis 1: odds of violent victimisation in those with versus without disability, by type and number of disabilities

	Total N	n victims in past year	OR adjusted for age/sex (95% CI)	p-value
Type & number of disabilities				
No disability	35361	1653	1	
One disability excluding MI	5270	204	1.7 (1.4-2.0)	<0.001
Two or more disabilities excluding MI	2511	86	2.1 (1.6-2.8)	<0.001
One disability: mental illness	565	70	2.6 (1.8-3.6)	<0.001
Two or more disabilities including MI	691	87	3.4 (2.5-4.5)	<0.001

Table 3-10 Sensitivity analysis 2: Odds of violent victimisation among those with disability only, by disability type

	Total N	n victims if past- year violence	Adjusted OR (95% CI) ¹	p-value
Disability type				
Sensory impairment	1392	38	0.7 (0.4-1.2)	0.26
Mobility limitation	4930	184	0.9 (0.6-1.4)	0.65
Learning disability	170	12	0.4 (0.2-0.8)	0.01
Mental illness	1256	157	1.5 (1.0-2.3)	0.04
Long-term physical illness	815	50	1.5 (0.9-2.3)	0.12
Other	4563	235	1.1 (0.8-1.6)	0.56

1. OR for victimisation in those with versus without a given disability among the disabled population only, adjusted for age, sex, number of disabilities and severity of functional limitation.

3.6 Discussion

3.6.1 Main findings

Using a large general population sample, it was found that people aged 16 and over with one or more disabilities including mental illness had relative odds of 3.0 (2.3-3.8) and those with one or more disabilities excluding mental illness had relative odds of 1.8 (1.5-2.2) of being a victim of past-year violence compared with the non-disabled, after adjusting for socio-demographic and behavioural factors (with similar relative odds across violence subtypes). Compared with non-disabled victims, victims with disability were more likely to experience psychosocial problems following violent incidents, especially those with pre-existing mental illness. It was estimated that around 8% of violence in the general population could be attributed to the independent effects of disability, and that this resulted in an estimated additional 116,000 people with disability experiencing actual violence in England and Wales in 2009, at an excess cost of £1.51 billion.

3.6.2 Findings in the context of past studies

Overall, the prevalence and risk estimates in this study are consistent with studies from other countries. [11] In the USA, one national and one statewide household survey found that women with disability had four times the odds of being a victim of sexual assault than non-disabled women. [146, 147] Both studies found no association between disability and physical assaults, but this may be due to limited study power. In our much larger study, we found a clear association between disability and both physical and sexual assaults. In Taiwan, national data on sexual assaults showed that people with disability were more likely to experience sexual assaults than those without, particularly those with learning difficulty and chronic psychosis. [113] This is consistent with our finding of high risk among those with mental illness. However, this study failed to find an association between violence and either learning disability or sensory impairment. This may be due to limited power (only 170 people with learning disability participated in this study). It could also be due to participation bias; the survey was designed for the general population, and people with significant intellectual impairment or communication problems may have found it difficult to participate in the lengthy and detailed study interview.

This study found that the relative odds of violence outside and within the home were equally high, with the former being more prevalent. However, the prevalence of domestic violence may have been underestimated due to response or disclosure bias. Disabled victims were less likely to complete the sensitive self-reported measure of domestic violence than non-disabled victims, and it is possible that non-completers were at higher risk. Disclosure of domestic violence may be particularly difficult for disabled victims, as they may be dependent on perpetrators, and may fear increased violence or independence loss and institutionalization following disclosure. [148] Nonetheless, this study suggests that interventions for both community and domestic violence are required in this population. In this study, social deprivation and substance misuse did not account for the excess risk of community violence, but did account for some of the excess domestic violence risk (especially amongst those with mental illness), suggesting that these factors could be appropriate intervention targets for addressing domestic violence.

Past evidence suggested that those with mental illness were at particularly high risk, but this was largely based on comparisons between studies with widely differing settings and measures. [11] This study is one of the few to directly compare risks for those with self-defined mental illness versus other disability types in a community sample. Those with mental illness had significantly higher risks of violence victimisation, and were more likely to suffer mental ill health following violence, than those with other disabilities. This may be explained by a high concentration of intersecting risk factors at the personal, interpersonal, community and societal levels among those with mental illness. [16, 68] These include high rates of exposure to childhood violence (e.g. parental domestic violence and childhood abuse), which predisposes to mental illness and personality difficulties, which in turn put people at risk of low self-esteem, interpersonal conflict, substance misuse and violence perpetration. [149] This constellation of problems increases the risk of victimisation, and decreases the likelihood of exiting a cycle of violence. Future research should identify which subgroups of people with mental disorder are at greatest risk of victimisation.

The population attributable fraction was estimated, as this “*provides a bridge by which results of epidemiologic studies can be made relevant to public health policy*”.

[150] Whilst disability-related risk accounted for a relatively small proportion of violence in the general population, the estimated number of victims with disability arising from this excess risk, and associated economic costs, are sizeable. A significant proportion of violent crime cost arises from its physical and emotional impact on victims. [137] As shown in this study, the psychological impact is greater among people with disability, so the true cost of crime is likely to have been underestimated. Classically, the assumption behind PAF estimates is that the exposure (disability) ‘causes’ the outcome (victimisation), and that there are (or could be) interventions that can eliminate the exposure. [150] This causal interpretation cannot be simplistically applied here. Disability does not directly ‘cause’ victimisation, but increases vulnerability to victimisation via a number of potential pathways, including increased levels of social deprivation, dependence on carers and perpetrators’ perception that they are immune from repercussions. The interventions for reducing violence against people with disability would not be aimed at eliminating the disability itself, but at addressing potential mediating pathways. The motivation for calculating a PAF in this study was to combine the information on the prevalence of disability (in this nationally representative sample) with information on the relative odds of victimisation among the disabled, so that the extent of disability-related violence in the population can be estimated. Quantifying the extent of disability-related violence at a national level helps to highlight the need for directing national violence-prevention policies at this vulnerable group.

3.6.3 Strengths and limitations

Strengths of this study include the large, nationally representative sample with detailed measures of disability, violence and covariates..

There are advantages and limitations for the BCS definition of mental illness. The main advantage is that it is defined in the same way as for other types of disability—namely as a chronic illness with a limiting impact on day to day function. This makes comparisons between those with different disability types easier. The definition did not include health service use or use of medications. This may be helpful in terms of comparing those with disability due to mental illness versus disability due to physical health conditions, since the two groups may have

differential health service use. But it is also a limitation, since it is difficult to map the population of people with self-reported disability to a clinical population. The lack of any clinical details means that it is difficult to interpret the findings of this study in relation to other studies that focus on participants with a diagnosed mental illness or those who are in contact with mental health services. In the next chapter, analysis of the Adult Psychiatric Morbidity Survey (APMS) is used to help clarify the clinical characteristics of those with self-defined chronic mental illness. The APMS used a similar measure of self-reported disability due to a mental health condition as that used in the BCS, but also contained diagnostic and health service use details. This enabled a description of the clinical characteristics of this group.

There are also advantages and limitations to the BCS definition of violence. A key advantage is that the BCS measures violence by any perpetrator, and reports in detail the victim-perpetrator relationship. This allows us to compare the prevalence and odds of domestic versus community violence. In addition, domestic and sexual violence are measured using not only face to face interviews- where there is a known problem with under-reporting- but also self-completion measures- where participants are more likely to disclose these experiences.[48] One limitation is that the questions on domestic and sexual violence are asked about in the context of a crime survey (in contrast to other national studies, which may focus exclusively on these types of violence, or ask about them in the context of a sexual health survey). There is evidence that the broader context of a survey can lead to different estimates of the prevalence of these experiences.[151] Participants may under-report domestic and sexual violence experiences if these are not perceived as a crime. This is somewhat mitigated in the BCS by the use of a semi-structured interview with detailed behavioural questions.

The target population only included people living in private residential households, so findings cannot be generalized to people with disability living in residential or supported accommodation. Findings cannot be generalized to those who have significant communication or cognitive problems (of a severity that would preclude their participation in the BCS). The survey did not use a sensitive measure of sexual and domestic violence in those aged 60 and above, so would have underestimated these violence subtypes in this age group. Reporting bias is possible, but its

direction is unclear. People with mental illness or other disabilities may over-report violence since it has a greater impact on them. Conversely, they may under-report violence as they may worry more about the consequences of disclosure. Past evidence suggests that people with mental illness tend to reliably report victimisation experiences. [50] The findings on the population-attributable fraction have to be interpreted with caution, since this is a cross-sectional study (so directional of causality cannot be established with certainty) and the causal links between disability and violence are likely to be complex (see section 3.6.2 for a more detailed discussion of this issue). Although the best available unit costs of crime were used, these were derived from general population studies, and may not account for differences in demography, baseline health and response to violence in the disabled.

3.6.4 Implications and conclusion

These findings highlight the need for clinicians to be aware of the elevated risks of domestic and community violence among patients with all disability types; and of the increased risk of mental health problems among disabled victims. A recent review on domestic violence interventions for people with disability found that disabled victims had difficulty accessing generic services, and that specialist services were rarely available and had a poor evidence base. [152] However, there were some promising approaches, including safety training and peer support. In the non-disabled population, there is good evidence for effective interventions in primary violence prevention (e.g. parent training, life skills training for children and adolescents) and secondary violence prevention (e.g. screening tools, education programmes for health professionals, advocacy support programmes). [58, 153, 154] Future research should evaluate the effectiveness of these interventions among people with disability, as well developing interventions to address risk factors specific to this group (e.g. caregiver stress, communication barriers to disclosure). From a policy perspective, the study findings strengthen the economic and public health arguments for directing interventions at this group.

The next chapter focuses on intimate partner violence against people with disability due to mental illness in greater detail, using secondary analysis of the British Crime

Survey and the Adult Psychiatric Morbidity Survey. Chapters 5-7 focus on crime against patients with SMI.

Chapter 4. Partner violence against those with chronic mental illness: findings from two national surveys

4.1 Abstract

Background: People with mental illness are at increased risk of being victims of intimate partner violence (IPV), but little is known about their risk for different forms of IPV, related health impact and help-seeking. Two national UK surveys, the British Crime Survey (BCS) and the Adult Psychiatric Morbidity Survey (APMS), measure chronic mental illness (CMI) and IPV in a complementary and comparable fashion. This enabled an investigation of evidence gaps on IPV against people with pre-existing CMI using large national samples.

Aims: (1) To estimate prevalence and odds for past-year emotional, physical and sexual IPV, related impact and disclosure among people with and without pre-existing CMI (2) to use APMS data to define the clinical characteristics of those with self-reported disability due to mental illness

Method: Analysis of data from 23,222 adult participants in the 2010/2011 BCS, and among 4764 participants in the 2007 APMS, using multivariate logistic regression.

Results: (1) IPV prevalence, odds, impact and reporting: In the BCS, past-year IPV was reported by 21% and 10% of women and men with CMI respectively. The adjusted relative odds for emotional, physical and sexual IPV among women with vs. without CMI were 2.8 (CI 1.9-4.0), 2.6 (CI 1.6-4.3) and 5.4 (CI 2.4-11.9) respectively. People with CMI were more likely to attempt suicide as result of IPV (aOR 5.4, CI 2.3-12.9), less likely to seek help from informal networks (aOR 0.5, CI 0.3-0.8), and more likely to seek help exclusively from health professionals (6.9, CI 2.6-18.3). In the APMS, past-year IPV was reported by 17% and 16% of women and men with CMI respectively; with adjusted relative odds of two to three-fold compared to those without CMI. (2) Clinical characteristics of those with self-reported disability due to mental illness (CMI): among APMS survey respondents, 86% of those with CMI had at least one diagnosed psychiatric disorder; of whom 81% had a common mental disorder and 7.5% had a psychotic illness. Seventy seven percent had received treatment for a mental health condition in any health setting and 20% had been in contact with secondary mental health services.

Conclusions: People with CMI are not only at increased risk of all forms of IPV, but they are more likely to suffer subsequent ill health and to disclose exclusively to health professionals. Therefore health professionals play a key role in addressing IPV in this population.

4.2 Introduction

In the previous chapter, analyses of data from the nationally representative British Crime Survey (BCS) suggested that people with chronic mental illness (CMI) were at increased risk of all forms of violence, including community violence (perpetrated by strangers or acquaintances) and domestic violence (perpetrated by family members or partners). In this chapter, I focus on violence perpetrated by partners or ex-partners against people with CMI, again using data from the BCS and the Adult Psychiatric Morbidity Survey (APMS). I also use APMS data to define the clinical characteristics of those with self-reported disability due to mental illness (since this is the population under study in the BCS, but the BCS lacks any clinical details on this group).

Intimate partner violence (IPV) is defined by the World Health Organization as *'behaviour within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviours'*. [58] It is well-established that IPV leads to mental health problems, including depression, PTSD and suicide attempts. [155-157] There is emerging evidence that this relationship is bidirectional- and that people (particularly women) with pre-existing mental disorders are at increased risk of subsequent IPV. [87, 88, 155] A recent systematic review found that 45% of people with common mental disorders (depression or anxiety) had experienced lifetime IPV and a quarter had experienced IPV in the preceding year; with increased odds of three-seven fold compared to people without psychiatric disorders. [88] However, the review found limited evidence on IPV against men with psychiatric disorders, on experiences of emotional and sexual partner violence in this population, and on the impact and reporting of IPV. Addressing these evidence gaps is essential in guiding effective interventions in this population.

In the UK, there are two national surveys that include measures of CMI and IPV: the British Crime Survey (BCS) and the Adult Psychiatric Morbidity Survey (APMS). The BCS has detailed measures of IPV (including nature, impact and disclosure), but only a brief (single-question) measure of chronic mental illness. The APMS has more detailed measures of chronic mental illness, including diagnosis and healthcare

use. It uses an identical measure of emotional and physical IPV to that used in the BCS, but unlike the BCS, it does not measure sexual IPV, or the impact and disclosure of IPV experiences. Therefore, these surveys provide complementary and comparable nationally representative data on the problem of partner violence against people with CMI.

This study aimed to address key evidence gaps on partner violence against people with CMI using data from these two nationally representative surveys. Data from the BCS was used to compare the prevalence, impact and reporting of IPV against people with versus those without CMI. Data from the APMS was used to describe the clinical characteristics of people with self-reported CMI, and to validate BCS findings on the prevalence and odds of IPV in this population. For clarity, the BCS and APMS analyses are first described separately, and then their findings are discussed in the concluding section.

4.3 BCS study: Objectives and hypotheses

This study aimed to examine the prevalence and relative odds of past-year IPV, and its health impact and reporting, among men and women with pre-existing CMI in a nationally representative sample.

It was hypothesised that, compared to people without CMI, people with CMI would be more likely to have experienced each type of IPV (emotional, physical and sexual IPV); and that victims with CMI would be (1) more likely to experience physical and emotional health problems as a result of IPV; and (2) less likely to seek help following IPV experiences than victims without CMI.

4.4 BCS study: Methods

BCS methods were described in detail in Chapter 3. In this section, the methodological details of relevance to this IPV study will be presented.

4.4.1 Data sources and study design

Data from the 2010/2011 British Crime Survey (BCS) were used. [39, 133] The BCS is an annual cross-sectional survey of crime victimisation in England and

Wales. It comprises face-to-face interviews with all participants, and a self-completion module on Domestic Violence for participants aged 16-59 only.

4.4.2 Sampling, interview procedures and participants

The 2010/11 BCS recruited a random nationally representative sample of people aged 16 or over living in private residential households in England and Wales. The sampling strategy was complex, and included stratification (in order to achieve a socio-demographically representative sample for each police force area) and clustering. For further details please see Home Office Technical Reports [133]. The widely used Postal Address File (the most complete record of private residential households) was used as the sampling frame. One adult was selected at random from each household, with no replacement in the case of non-participation.

Trained lay interviewers visited each selected household. Written informed consent was obtained from the selected adult after the study had been described. Each participant had a face-to-face computer-assisted interview, conducted in a private setting in their home. This ‘main interview’ collected information on socio-demographics and past-year crime victimisation. At the end of this interview, participants aged 16-59 were additionally invited to consent to self-completion modules, which addressed domestic violence (including partner and family violence), sexual victimisation, drug-taking and drinking. These experiences were asked about in a self-completion questionnaire since they tend to be under-reported in face-to-face interviews. [48] The participants were informed of the content and sensitive nature of the self-completion questionnaires, and re-assured of confidentiality. Participants could opt out of the self-completion modules if they were unwilling or unable to take part. Consenting participants were given a laptop and asked to read the questionnaires and enter the answers themselves, after which their answers were concealed. If they requested help from the interviewer with answering the self-completion module, questions on domestic and sexual violence were omitted.

This study included all 2010/2011 BCS participants aged 16-59 who completed the Domestic Violence module. Data were excluded for those who had never had a

partner, and those with missing data on CMI (main exposure) or partner violence (primary outcome).

4.4.3 Measures

The main exposure was chronic mental illness (CMI). This was defined as ‘any long-standing mental health condition, such as depression’, which has lasted for 12 months or more and which limited day-to-day activities; as reported by participants in the face-to-face interview. No further details about the nature of CMI were available in this survey.

The main outcomes were: Any past-year IPV-defined as any emotional, physical or sexual abuse by a current or former partner in the past 12 months-and the separate forms of IPV: emotional, physical and sexual. These were assessed by asking a series of questions on specific abusive behaviour, as detailed in Figure 4-1. Since the definition of CMI for this study required a duration of more than one year, and the outcome of interest was IPV in the preceding year, the mental illness would by definition precede IPV (unless there was any measurement error).

Secondary outcomes were (1) Health problems within the past 12 months ‘as a result of the abuse’, defined as: (1a) Physical illness or injury as a result of IPV (cuts / bruises / scratches / black eye / broken bones / internal injury / other physical injury / contracting a disease / becoming pregnant) (1b) Mental / emotional problems as a result of IPV (difficulty sleeping / nightmares / depression / low self-esteem/attempted suicide) (1c) Attempted suicide as a result of IPV. (2) Help-seeking; defined as telling one of the following three sources of help about IPV (2a) informal network (family / relatives / friends / neighbours / work colleagues) (2b) health professionals (doctor / nurse / health visitor / counsellor / therapist) (2c) other formal organisation (police / legal professional / government agency / helpline / specialist support service / voluntary organisation).

The following covariates were defined as potential a priori confounders for any association between CMI and IPV; and between CMI and IPV-related health problems / help-seeking: sex, age, ethnicity (White/non-White), marital status (married/separated, divorced or widowed/ single), employment (employed,

economically inactive, unemployed) and tenancy (home owner, rents from private landlord, rents from local council). [48] In addition, help-seeking was adjusted for presence of adverse health outcomes as a result of IPV.

Figure 4-1 BCS definition of intimate partner violence

Intimate partner violence: any emotional, physical or sexual abuse (as defined below) perpetrated by a current or former partner (boyfriend or girlfriend; husband, wife or civil partner)

Emotional abuse: partner did any of the following

- Prevented them from having fair share of money
- Stopped them from seeing friends or relatives
- Repeatedly belittled them so they felt worthless
- Threatened to hurt them or someone close to them

Physical abuse: partner did any of the following

- Pushed them, held them down or slapped them
- Kicked, bit or hit them, or threw something at them
- Choked or tried to strangle them
- Threatened them with a weapon or threatened to kill them
- Used some other kind of force against them

Sexual abuse: partner did any of the following in a way that caused fear, alarm or distress

- Indecently exposed themselves to them
- Touched them sexually when they did not want it (e.g. groping, touching of breasts or bottom, unwanted kissing)
- Sexually threatened them (e.g. demanded sex when they did not want it, or followed or cornered them in a sexually threatening way)
- Forced them to have sexual intercourse, or to take part in some other sexual act, when they made it clear that they did not agree or when they were not capable of consent

4.4.4 Statistical analysis

The statistical software STATA version 12.0 SE (Stata Corporation, East College Station, TX USA) was used for all analyses. The complex survey design was taken into account (including clustering, stratification and population weights) using the STATA 'svy' suite commands.

The population-weighted prevalence of IPV in those with and without CMI was estimated, and the prevalence standardized by age and weight (with the whole study sample as the reference population). Multivariate logistic regression was used to test for the association between CMI and IPV experiences, and among IPV victims for the association between CMI and (a) adverse health outcomes, (b) reporting of IPV experiences. Analyses were adjusted for the confounders detailed in section 4.4.3. Hypothesis tests were based on adjusted Pearson's tests (for bivariate analyses) or adjusted Wald tests (for multivariate logistic regression analyses). Interaction between CMI and sex in relation to association with IPV was tested. Analyses for IPV prevalence and odds were stratified by sex, since one of the study aims was to establish these outcomes separately for men and women.

None of the co-variables used in the multivariate analyses had missing values for more than 1% of study participants. Those with missing data were excluded from the analyses.

In this secondary analysis the sample size was determined by the available data. Given the sample sizes for those without mental illness (N=12,309) and those with mental illness (N=692), a prevalence of past-year IPV in those without mental illness of 6%, and an alpha error level of 5%, the study had 91% power to detect a 50% difference in the prevalence of victimisation among those with mental illness (using a two-tailed hypothesis test). [145] A 50% difference in prevalence would be a conservative estimate, since past systematic reviews indicated at least a two-fold victimisation risk for those with mental illness. [11]

4.5 BCS study: Results

4.5.1 Response rate

The sample flow is shown in Figure 4-2. 46,754 people aged 16 and above participated in the 2010/11 BCS; a response rate of 76%. 29,821 participants were aged 16-59 (and hence eligible for the self-completion module), of whom 23,602 (79.1%) took part in this module; 2,297 (7.7%) refused and 3,922 (13.2%) were unable to complete it without interviewer help (so were not asked the domestic violence questions to maintain their safety). Completion of the domestic violence module was less likely among those who were older, from ethnic minorities, or unemployed. It was also less likely amongst those with versus without CMI (68 vs. 80%). Within the CMI population there was a lower response rate among those with severe vs. less severe functional disability ($p=0.01$); and among those with vs. without an additional physical disability ($p<0.01$).

Of the 23,602 participants who completed the domestic violence module, 23,222 were included in this study sample; after excluding 374 (1.6%) who never had a partner and six (0.03%) who had no data on partner violence.

Figure 4-2 BCS study: participant flow

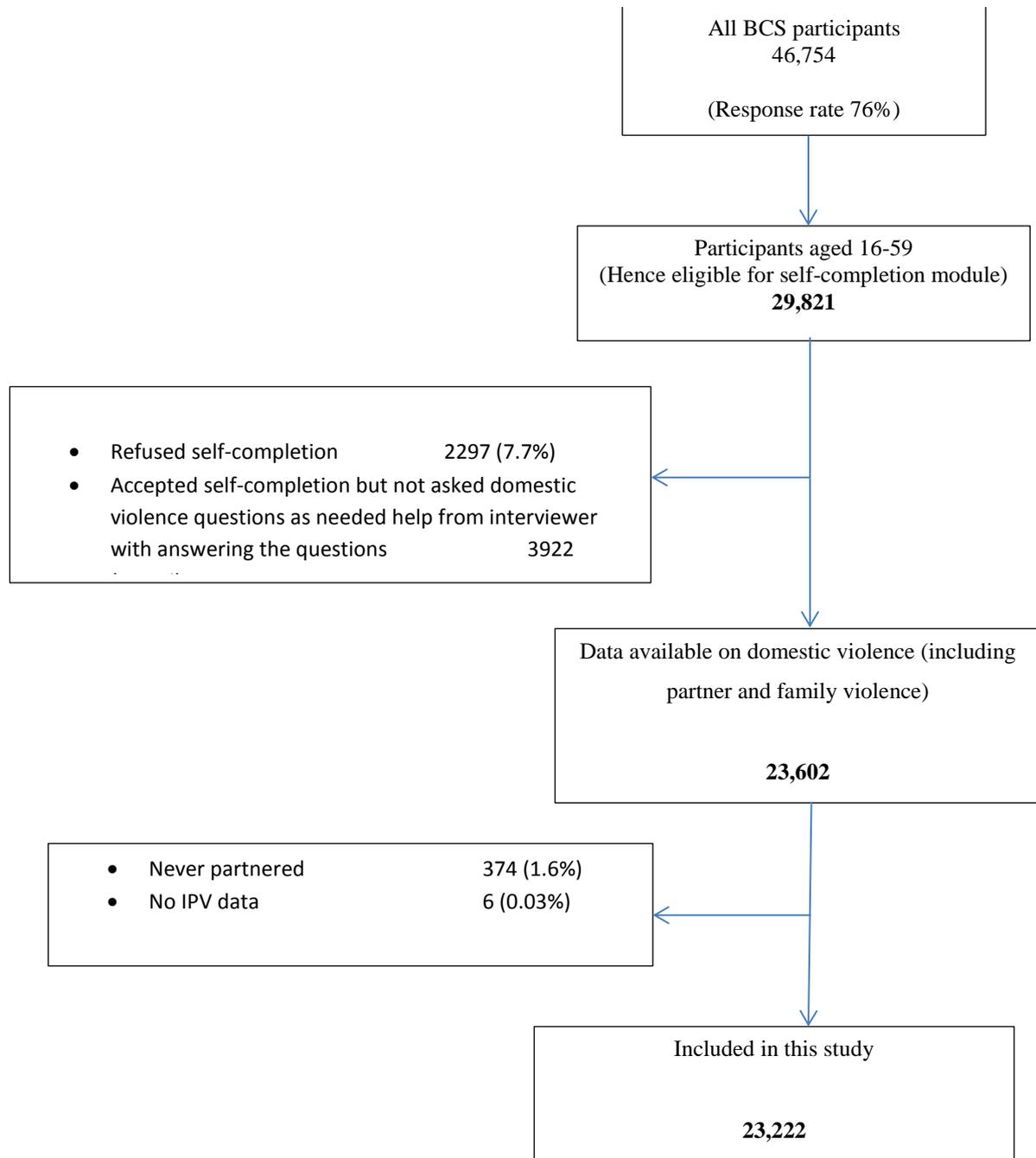


Table 4-1 BCS study: Sample characteristics among those with and without chronic mental illness

Characteristic ¹	Chronic mental illness	No chronic mental illness
	N=692	N=12,309
	% (n)	% (n)
Male	39.0 (270)	45.4 (10221)
Female	61.0 (422)	54.6 (12309)
White	94.1 (650)	91.3 (20574)
Non-White	5.9 (41)	8.7 (1950)
<i>Missing</i>	(1)	(6)
Married	35.7 (247)	58.6 (13204)
Single	39.6 (274)	28.8 (6491)
Separated/divorced/widowed	24.7 (171)	12.6 (2828)
Employed	27.2 (188)	79.9 (17957)
Economically inactive	64.6 (447)	15.7 (3523)
Unemployed	8.2 (57)	4.4 (991)
<i>Missing</i>	(0)	(41)
Owns house	32.6 (225)	64.7 (14553)
Rents house from private landlord	26.5 (183)	21.7 (4881)
Rents house from Local Council	41.0 (283)	13.6 (3053)
<i>Missing</i>	(1)	(43)
Age: mean (s.d)	40.6 (10.4)	39.0 (11.8)

1. All characteristics differed between groups at the 1% significance level

4.5.2 CMI prevalence and sample characteristics

The population-weighted prevalence of chronic mental illness was 2.4% (CI 2.2%-2.7%; n/N=692/23,222) with a prevalence of 2.7% (n/N=442/12,731) among women and 2.1% (270/10,491) among men. Those with mental illness were more likely to be female, older, white, single, unemployed and to live in rented accommodation (see Table 4-1).

4.5.3 Prevalence and odds of past-year IPV

The prevalence and odd of past year IPV among those with and without chronic mental illness are shown in **Table 4-2** and **Table 4-3** respectively. Among women, the population-weighted prevalence of past-year IPV was 20.0% (89/442) and 5.3% (789/12,309) among those with and without CMI respectively, and the age / sex standardized prevalence was 21.4% and 5.6% respectively. Among men, the IPV population-weighted prevalence was 6.9% (21/271) and 3.1% (356/10,221) among those with and without CMI respectively, and the age / sex standardized prevalence was 10.1% and 3.3% respectively.

The adjusted OR for any IPV among people with CMI was 2.9 (CI 2.1-3.8), with a trend for higher relative odds among women (OR=3.3, CI 2.4-4.7) than men (OR=2.0, CI 1.1-3.7) (interaction term for mental illness x female gender = 1.8; CI 0.97-3.5; p=0.06). Among women with CMI, the adjusted relative odds for emotional, physical and sexual IPV were 2.8 (CI 1.9-4.0), 2.6 (CI 1.6-4.3) and 5.4 (CI 2.4-11.9) respectively. Among men with CMI, the adjusted relative odds for emotional and physical IPV were 2.0 (1.0-4.4) and 3.0 (1.2-7.5) respectively. The absolute number of men with CMI reporting sexual IPV was too small for stable estimates.

Table 4-2 BCS study: Population-weighted and standardised prevalence of past- year IPV among those with and without chronic mental illness, by gender

	Men & Women				Women				Men			
	Population-weighted prevalence (n)		Standardised prevalence (95% CI) ¹		Population-weighted prevalence (n)		Standardised prevalence (95% CI) ²		Population-weighted prevalence (n)		Standardised prevalence (95% CI) ²	
	CMI (N=692)	No CMI (N=22,530)	CMI	No CMI	CMI (N=442)	No CMI (N=12,309)	CMI	No CMI	CMI (N=271)	No CMI (N=10,221)	CMI	No CMI
Any IPV	14.6 (110)	4.3 (1145)	15.7	4.5	20.0 (89)	5.3 (789)	21.4	5.6	6.9 (21)	3.1 (356)	10.1	3.3
			(11.4-20.1)	(4.1-4.8)			(16.1-26.7)	(5.1-6.1)			(3.4-16.7)	(2.9-3.8)
Emotional IPV	11.1 (90)	3.3 (897)	12.6	3.4	15.2 (73)	4.4 (653)	16.6	4.7	5.3 (17)	2.0 (244)	8.6	2.2
			(8.6-16.6)	(3.1-3.7)			(12.2-21.1)	(4.2-5.2)			(2.2-15.0)	(1.8-2.5)
Physical IPV	6.1 (45)	1.8 (486)	7.1	1.8	8.1 (35)	2.2 (344)	9.9	2.5	3.2 (10)	1.2 (142)	4.3	1.2
			(4.0-10.1)	(1.6-2.1)			(5.6-14.2)	(2.1-2.8)			(0.0-8.6)	(0.0-1.5)
Sexual IPV³	-	-	-	-	3.0 (13)	0.4 (68)	2.8	0.49	-	-	-	-
							(1.3-4.4)	(0.34-0.64)				

1. Standardised for age and sex

2. Standardised for age

3. Sexual IPV is reported for women only as the absolute numbers in men with MI were too low (<5) for stable estimates)

Table 4-3 BCS study: Odds ratios for past-year IPV among people with and without chronic mental illness, by gender

	n among those with CMI	n among those without CMI	Age and sex-adjusted OR (95% CI)	p-value	Fully adjusted OR ¹ (95% CI)	p-value
MEN & WOMEN	N=692	N=22,530				
Any IPV	110	1145	4.0 (3.0-5.2)	<0.001	2.9 (2.1-3.8)	<0.001
Emotional IPV	90	897	3.7 (2.8-5.0)	<0.001	2.5 (1.8-3.6)	<0.001
Physical IPV	45	486	3.7 (1.6-2.6)	<0.001	2.6 (1.7-4.0)	<0.001
Sexual IPV ³	-	-	-	-	-	-
WOMEN	N=442	N=12,309				
Any IPV	89	789	4.7 (3.4-6.4)	<0.001	3.3 (2.4-4.7)	<0.001
Emotional IPV	73	653	4.0 (2.9-5.6)	<0.001	2.8 (1.9-4.0)	<0.001
Physical IPV	35	344	4.0 (2.4-6.7)	<0.001	2.6 (1.6-4.3)	<0.001
Sexual IPV	13	68	8.0 (4.1-15.6)	<0.001	5.4 (2.4-11.9)	<0.001
MEN	N=270	N=10,221				
Any IPV	21	356	2.6 (1.5-4.6)	<0.01	2.0 (1.1-3.7)	0.03
Emotional IPV	17	244	2.9 (1.5-5.5)	<0.01	2.0 (1.0-4.4)	0.04
Physical IPV	10	142	3.0 (1.4-6.4)	<0.01	3.0 (1.2-7.5)	0.02
Sexual IPV ²	-	-	-	-	-	-

1. Final model included age, sex, ethnicity, marital status, housing tenure, employment status

2. Sexual IPV is reported for women only, as the absolute numbers in men with MI is too small (<5) for stable estimates

4.5.4 Health problems among IPV victims

Comparing health problems for victims with and without pre-existing CMI (see **Table 4-4**); the former were more likely to have experienced emotional / mental problems within the past year as a result of IPV (53 vs 30%; OR adjusted for socio-demographics = 2.2, CI 1.3-3.8), with particularly high relative odds for attempted suicide as a result of IPV (13% vs. 2%, aOR 5.4, CI 2.3-12.9). The two groups were equally likely to have experienced physical injuries/illness following IPV (24%, $p=0.97$).

4.5.5 Help-seeking among IPV victims

Victims with and without CMI were equally likely to have sought help from any source (**Table 4-5**); 52 vs. 51% among all victims; and 69 vs. 78% among victims who experienced health problems as a result of the abuse. However, victims with CMI were less likely to have sought help from informal networks (OR adjusted for socio-demographics and health problems = 0.5, CI 0.3-0.8) and more likely to have sought help from health professionals (aOR=2.7, CI 1.3-5.5) than victims without CMI. Most victims sought help from more than one source, but 12% of victims with CMI (vs. 1.5% of those without) sought help exclusively from health professionals (aOR 6.9, CI 2.6-18.3).

Table 4-4 BCS study: Prevalence and odds of health problems as a result of IPV among victims with and without chronic mental illness

Problems as a result of IPV	Victims with CMI	Victims without CMI	OR adjusted for age and sex (95% CI)	Fully adjusted OR (95% CI) ¹	P for fully adjusted OR
	N=109: % (n)	N=1142: % (n)			
Any health problems	57.9 (64)	41.3 (493)	1.9 (1.1-3.1)	1.8 (1.1-3.0)	0.02
Physical injury/illness	23.9 (23)	23.7 (283)	1.0 (0.5-2.0)	0.9 (0.5-1.8)	0.75
Mental/emotional problems	53.2 (60)	30.5 (359)	2.4 (1.5-4.0)	2.2 (1.3-3.8)	<0.01
Suicide attempts	12.8 (14)	2.2 (25)	4.9 (2.1-11.1)	5.4 (2.3-12.9)	<0.001

1. Adjusted for age, sex, ethnicity, marital status, employment, tenancy

Table 4-5 BCS study: Prevalence and odds of disclosure of IPV among victims with and without chronic mental illness

Disclosed IPV to:	IPV victims with or without health problems as a result of IPV		IPV victims with health problems as a result of IPV		OR adjusted for age and sex (95% CI)	Fully adjusted OR (95% CI) ¹	P for fully-adjusted OR
	CMI	No CMI	CMI	No CMI			
	% (n)	% (n)	% (n)	% (n)			
Anyone	52.4 (57)	50.8 (601)	68.9 (44)	77.8 (390)	1.0 (0.6-1.6)	0.6 (0.4-1.2)	0.15
Informal	37.0 (38)	45.0 (521)	52.0 (31)	70.4 (343)	0.7 (0.40-1.1)	0.5 (0.3-0.8)	<0.01
Health professionals	35.0 (42)	13.4 (171)	44.3 (34)	25.6 (138)	3.2 (1.9-5.5)	2.7 (1.3-5.5)	<0.01
Other formal	23.3 (28)	17.8 (231)	39.0 (26)	33.2 (174)	1.2 (0.60-2.3)	0.7 (0.4-1.3)	0.27
HP only	11.8 (12)	1.5 (24)	12.5 (8)	3.1 (20)	7.0 (3.0-16.2)	6.9 (2.6-18.3)	<0.001

1. Adjusted for age, sex, ethnicity, marital status, employment, tenancy and presence of health problems as a result of IP

4.6 BCS study: Discussion

4.6.1 Key findings

In a large, nationally representative crime survey in England and Wales, and comparing people with and without chronic mental illness (CMI) of more than 1 year's duration; the population-weighted prevalence of being a victim of any intimate partner violence (IPV) in the past year was 20.0% vs. 5.3% among women and 6.9% vs. 3.1% among men. After adjusting for socio-demographics, it was found that people with CMI were two to five times more likely to experience emotional, physical and sexual IPV as those without (with a trend for higher odds among women than men). Victims with CMI were twice as likely to experience mental or emotional problems and five times more likely to attempt suicide following IPV than victims without CMI. Whilst there was no difference in overall disclosure rates between victims with and without CMI, the former were half as likely to disclose IPV to informal social networks, but twice as likely to disclose it to a health professional. Most victims disclosed their experiences of IPV to multiple parties, but around 12% of IPV victims with CMI (and 1.5% of those without) disclosed exclusively to a health professional.

4.6.2 Strengths and limitations

The strengths of this study include clearly defined hypotheses; a large adequately powered study; a nationally representative sample; a validated measure of IPV; [48] detailed measures of IPV impact and disclosure and adjustment for key socio-demographic confounders. Limitations include lack of details on the nature of CMI within the BCS dataset, although the study definition met internationally accepted definitions of disability. [19] There is potential for non-participation bias, since there was a lower response rate among those with CMI. Those with the greatest disability are most likely to opt out of this long, general survey. Greater disability is likely to be associated with greater IPV risk, therefore the relative risk for those with mental illness may have been underestimated. It is possible that people with and without mental illness had differential recall or reporting of IPV, although there is some evidence that self-reported victimisation among people with mental illness is reliable. [50] A limitation of cross-sectional studies is that it is often difficult to be certain of the direction of causality, however in this study the definitions of CMI (duration more than 1 year) and recent IPV (within the past year) mean that mental illness would have preceded IPV- except where

there was measurement error due to reporting or recall bias. Findings are likely to generalise to other high-income settings, which tend to have similar prevalence and risk factors for IPV. [45]

4.6.3 Findings in the context of past studies and implications

This is the first study to directly compare recent IPV (emotional, physical and sexual) among men and women with and without pre-existing mental illness. [11, 87, 88, 155] The findings on the prevalence and relative odds of any past-year IPV among women with mental illness are consistent with recent systematic reviews. [11, 88, 155] Novel results include the finding of an excess risk in men as well as in women with mental illness; and an excess risk for all forms of IPV, including emotional and sexual IPV. The findings on emotional IPV are important, since there is evidence that emotional IPV may lead to greater health problems than physical IPV, [158-160] whereas most research and clinical enquiry is focused on the latter. The findings suggest that health professionals should enquire about all forms of recent IPV, including emotional abuse, among men and women with mental illness.

Victims with pre-existing mental illness had an excess risk of psychological ill health (including suicide attempts) following IPV; consistent with findings on the greater psychological health impact of community violence against people with mental illness reported in the previous chapter. [2] Victims with CMI were more likely to disclose IPV exclusively to healthcare professionals. These findings underline the key role that health professionals play in detecting IPV and supporting victims amongst this vulnerable population. However, IPV is under-detected by primary care and mental health professionals, [161, 162] who report a lack of knowledge and preparedness to address IPV. [163, 164]

Complex interventions that include staff training and integration of advocacy workers within healthcare settings have been shown to improve detection of IPV and subsequent referral; both in primary care settings (based on RCT data) and in psychiatric settings (based on pilot data). [165, 166] Recent NICE guidance on domestic violence [167] emphasises that identification of, and appropriate responses to, IPV among mental health service users should be part of good clinical practice; so mental health professionals should be trained to respond safely, within well-defined care pathways. [168] However, there are few studies on specific

interventions for IPV in people with CMI. [169] Future research should focus on interventions to decrease the risk and impact of IPV risk among those with mental illness.

4.7 APMS study: objective and hypotheses

The aim of this study was to use data from the nationally representative 2007 Adult Psychiatric Morbidity Survey to extend and externally validate the findings from the BCS study described above.

Specifically, the objectives were to:

- Estimate the prevalence of self-reported CMI among those aged 18-59
- Describe the clinical characteristics of those with self-reported CMI in terms of psychiatric conditions / diagnoses and health service use
- Estimate the prevalence and adjusted relative odds of past-year physical or emotional IPV among those with and without self-reported CMI
- Compare health service use among those who had or had not been victims of past-year IPV, and test the hypothesis that victims with pre-existing CMI would have greater healthcare use

4.8 APMS study: methods

4.8.1 Design, setting and participants

This study was based on secondary analysis of data from the 2007 Adult Psychiatric Morbidity Survey (APMS). The APMS is a national cross-sectional survey of psychiatric morbidity in people aged 16 or over living in private residential households in England. It is commissioned by the NHS Information Centre for Health and Social Care, and conducted by the National Centre for Social Research in collaboration with the University of Leicester. It was first carried out in 1992, and repeated in 2000 and 2007. The survey aims to estimate the prevalence of psychiatric morbidity, to assess key risk and protective factors and to examine healthcare use by people with mental health problems. [170]

The sample was designed to be representative of people aged 16 or over living in private households. The survey employed a multi-stage, stratified probability sampling design. The sampling frame was the Postal Address File (the most-widely used sampling frame for private household in England- also used by the BCS). The primary sampling units were

postcode sectors, from which addresses were sampled at random. One adult from each household was randomly selected for interview. The survey data was weighted to take into account unequal sampling probability and differential non-response by age, sex and region-such that it was representative of the adult national population. [133]

The survey was conducted in two phases; a first phase carried out by lay interviewers, and a second phase (for assessment of certain diagnoses) carried out in a subgroup of participants by clinically trained research interviewers. Both involved computer-assisted face-to-face interviews. In addition, more sensitive topics, such as drinking, drug use and domestic violence experiences, were assessed using self-completion questionnaires, also using the laptop. This is similar to BCS interview procedures. For further details on sampling and participants see McManus et al. [171]

For this analysis, all APMS respondents aged 16-59 were included (to match the age range of participants in the BCS study).

4.8.2 Measures

The *main exposure* was chronic mental illness (CMI). This derived variable was created for the purposes of this analysis, such that it was as close as possible to the definition of CMI used in the British Crime Survey. People were defined as having CMI if they answered ‘yes’ to all of the following questions:

- a. Ever had anxiety, depression or other mental health issue since the age of 16
- b. First had the condition more than a year ago
- c. Had to cut down on any of the things they usually do about the house, at work or in free time because of this illness or injury in the past two weeks

The clinical characteristics of people with CMI were described in terms of diagnosis and healthcare use. In terms of diagnosis, the following measures were used:

- a. Number of psychiatric conditions: the total number of APMS psychiatric conditions, which included the following diagnoses and problem behaviours: common mental disorders, psychosis, eating disorders, post-traumatic stress disorder, attention deficit hyperactivity disorder (ADHD), alcohol or drug dependency, borderline or antisocial personal disorder, and problem

behaviours such as problem gambling and suicide attempts. These conditions were defined according to different classification systems (with a mixture of diagnostic and screening measures) and for different time periods.

- b. Common mental disorders (CMDs): The diagnosis of CMD (depression, anxiety) was based on the Clinical Interview Schedule-Revised (CIS-R).
- c. Psychosis: The diagnosis of ‘probable or definite psychosis’ (schizophrenia, bipolar disorder) was based on a positive response to one or more of four screening questions (on antipsychotic use; psychiatric admission; experiences of auditory hallucinations; self-reported diagnosis or suggestive symptoms), and in a subgroup of screen-positive individuals on findings from the SCAN (Schedule for Clinical Assessment in Neuropsychiatry).

In terms of healthcare use, participants were asked about any use of primary, secondary and community health services in the past 12 months, and whether the contact was for ‘a physical complaint’ or for ‘a mental, nervous or emotional complaint’. We defined the following healthcare use measures:

- a. Any healthcare use, defined as: GP visit; therapy or counselling; community care from any nurse, psychologist or psychiatrist; out-patient visit; in-patient stay
- b. Healthcare use (defined as in (a) above) specifically for ‘a mental, nervous or emotional complaint’
- c. Healthcare use (defined as in (a) above) specifically for ‘a physical complaint’

The *main outcome* was any past-year physical or emotional IPV. The APMS used an identical measure for emotional and physical IPV to that used in the BCS (see Figure 4-1 for details). Although the APMS also enquired about sexual abuse, there were no details available on the perpetrator, so sexual abuse perpetrated by partners could not be estimated.

4.8.3 Statistical analysis

All analyses were carried out using STATA version 12.0. Analyses took the complex survey design into account, including clustering, stratification and population weights (using the STATA ‘svy’ suite commands). The population-weighted prevalence of CMI (with 95% confidence intervals) was estimated, and the clinical characteristics of those with CMI were described using weighted proportions.

The population-weighted and age/sex standardised prevalence of past-year IPV among those with and without CMI were estimated. When comparing prevalence findings from the APMS and BCS surveys, the population-weighted estimates were used. Both surveys used a similar weighting approach (with weighting designed to reflect the age/sex/regional and social deprivation structure of the general population), [133, 171] enabling meaningful indirect comparisons of weighted prevalence estimates.

Multivariate logistic regression was used to estimate odds ratio of past-year emotional or physical IPV among those with and without CMI, adjusting for the same potential socio-demographic confounders that were used in the BCS study analysis (age, sex, ethnicity, marital status, employment and housing tenure). BCS and APMS estimates were examined by inspecting point estimates and overlap in the confidence intervals.

Healthcare use among IPV victims was described using weighted proportions. The odds of healthcare use among those who had or had not experienced IPV were estimated, adjusting for socio-demographics. The interaction between CMI and IPV in terms of healthcare use was estimated.

In this secondary analysis the sample size was determined by the available data. Given the sample sizes for those without mental illness (N=4438) and those with mental illness (N=204), a prevalence of past-year IPV in those without mental illness of 8%, and an alpha error level of 5%, the study had 91% power to detect a doubling in the prevalence of victimisation among those with mental illness (using a two-tailed hypothesis test). [145] The two-fold victimisation risk is in line with estimates from past systematic reviews. [11]

4.9 APMS study: Results

4.9.1 Sample flow

The APMS had a 57% response rate, with 7403 non-proxy completed interviews. As reported by McManus et al, households were less likely to respond if they were in London, if they had a physical barrier to entry, and if they were in an area with a lower percentage of owner-occupied households. There were no differences in household response rate by percentage of those from ethnic minorities or percentage of adults in non-manual labour occupations. [171] No details were given on personal characteristics of non-respondents (e.g. age, sex). Of the

7403 APMS participants, 4764 participants were aged 16-59 and were included in this analysis. Of the included participants, 2.1 % (n=99/4764) had never been in a relationship, and 0.5% (23/4764) had missing data on IPV, so 4642 participants were included in IPV analyses.

4.9.2 Chronic mental illness: prevalence and characteristics

The population-weighted prevalence of chronic mental illness was 3.3% (95% CI 3.0%-4.0%; n/N=213/4764); with a weighted prevalence of 4.8% (n/N=152/2699) among women and 2.2% (n/N=61/2065) among men.

The clinical characteristics of those with CMI are shown in **Table 4-6**. Of the 213 respondents with CMI, 14% (n=29) had no diagnosed psychiatric conditions, 32% (n=68) had one condition and the remaining 54% (n=116) had two or more conditions. Common mental disorders were present in 81% (n=173) and psychosis in 7.5% (n=16) of respondents with CMI. In terms of healthcare use, 77% (n=164) had received treatment or medication for their mental illness in the preceding year; with 20% (n=42) receiving this care from secondary mental health services.

Table 4-6 APMS study: Clinical characteristics of APMS participants with self-defined chronic mental illness

Clinical characteristic	N (N=213)	Un-weighted proportion (95% CI)
Psychiatric conditions / diagnosis		
Number of psychiatric conditions:		
<i>None</i>	29	13.6 (9.0-18.2)
<i>One</i>	68	31.9 (25.6-38.2)
<i>Two or more</i>	116	54.5 (47.7-61.2)
Common mental disorder (depression or anxiety)	173	81.2 (75.9-86.5)
Probably or definite psychosis	16	7.5 (3.9-11.1)
Healthcare use in past 12 months		
Any healthcare use	205	96.2 (93.7-98.8)
Healthcare use for physical condition	184	86.4 (81.7-91.0)
Healthcare use for mental condition:	164	77.0 (71.3-82.7)
<i>From GP</i>	159	75.0 (69.1-80.9)
<i>From therapist / counsellor</i>	42	19.7 (14.3-25.1)
<i>From secondary services¹</i>	42	19.7 (14.3-25.1)

1. Care from psychiatrist, psychologist or community psychiatric nurse, in-patient stay or out-patient visit (measure by reason for visit available for last quarter only)

4.9.3 Chronic mental illness & IPV

Table 4-7 and Table 4-8 show the prevalence and relative odds of IPV among those with and without chronic mental illness in the APMS and BCS analyses.

APMS findings: Among women, the population-weighted prevalence of past-year IPV was 17.3% (25/150) and 7.8% (191/2506) among those with and without CMI respectively, and the age / sex standardized prevalence was 21.5% and 8.6% respectively. Among men, the IPV population-weighted prevalence was 16.0% (7/54) and 6.4% (123/1932) among those with and without CMI respectively, and the age / sex standardized prevalence was 12.2% and 7.0% respectively. After adjusting for socio-demographics, and comparing people with and without CMI, the aOR for any emotional / physical IPV was 2.3 (CI 1.3-4.0) among women and 2.7 (1.2-6.2) among men.

Comparing APMS & BCS findings: The prevalence and odds of victimisation in the APMS and BCS surveys were compared, by inspection of point estimates and confidence interval overlap. The estimates were similar for women with CMI. For men with SMI, the APMS prevalence estimates were somewhat higher, but the absolute number of male victims was very small, and the confidence intervals overlapped. For women and men without CMI, APMS prevalence estimates of IPV were higher than BCS estimates, with non-overlapping confidence intervals. However, the fully-adjusted ORs for IPV were similar in the APMS & BCS analyses, with overlapping confidence intervals for all outcomes among both women and men.

Healthcare use by IPV victims (Table 4-9): 78% of IPV victims used health services in the past year; 67% for physical health problems and 31% for mental health problems. Compared to those who did not report IPV, those who reported IPV were 50% more likely to use any healthcare services, 30% more likely to use services for physical health problems and twice as likely to use services for mental health problems; after adjusting for socio-demographics and the presence of self-defined CMI. There was no interaction between IPV and CMI (i.e. healthcare use was similar among IPV victims, whether or not they had pre-existing mental illness).

Table 4-7 APMS study: APMS and BCS estimates of the prevalence of past-year IPV among those with and without chronic mental illness (CMI)¹

	Population-weighted prevalence (95% CI)				
	CMI		No CMI		
	APMS	BCS	APMS	BCS	
MEN & WOMEN	N=204	N=692	N=4438	N=22,530	
Emotional or physical IPV	16.9 (12.3-22.9)	13.5 (10.6-17.2)	7.1 (6.3-8.0)	4.0 (3.7-4.3)	
Emotional IPV	16.9 (12.3-22.9)	11.1 (8.6-14.2)	6.6 (5.8-7.4)	3.3 (3.0-3.6)	
Physical IPV	7.6 (4.5-12.5)	6.1 (4.1-8.9)	2.9 (2.4-3.5)	1.8 (1.6-2.0)	
WOMEN	N=150	N=442	N=2509	N=12,309	
Emotional or physical IPV	17.3 (11.6-24.9)	18.2 (13.9-23.6)	7.8 (6.7-9.0)	5.1 (4.7-5.6)	
Emotional IPV	17.3 (11.6-24.9)	15.2 (11.6-19.7)	7.4 (6.4-8.6)	4.4 (4.0-4.8)	
Physical IPV	5.8 (3.1-10.5)	8.1 (5.0-12.7)	3.3 (2.6-4.2)	2.2 (2.0-2.6)	
MEN	N=54	N=271	N=1932	N=10,221	
Emotional or physical IPV	16.0 (8.3-28.6)	6.9 (4.1-11.4)	6.4 (5.4-7.7)	2.8 (2.5-3.2)	
Emotional IPV	16.0 (8.3-28.6)	5.3 (2.9-9.4)	5.7 (4.7-7.0)	2.0 (1.7-2.4)	
Physical IPV	12.2 (4.9-27.2)	3.2 (1.6-6.5)	2.4 (1.8-3.2)	1.2 (0.96-1.4)	
1. Absolute	numbers	are	shown	in	Table

4-8

Table 4-8 APMS study: BCS and APMS estimates of adjusted odds ratios for past-year IPV among people with and without CMI

	APMS crude n		BCS crude n		Age and sex-adjusted OR(95% CI)		Fully adjusted OR ¹ (95% CI)	
	CMI	No CMI	CMI	No CMI	APMS	BCS	APMS	BCS
MEN & WOMEN	N=204	N=4438	N=692	N=22,530				
Emotional or physical IPV	32	314	102	1096	2.9 (2.0-4.3)	3.8 (2.9-5.1)	2.4 (1.6-3.7)	2.8 (2.0-3.7)
Emotional IPV	32	290	90	897	3.1 (2.1-4.6)	3.7 (2.8-5.0)	2.6 (1.7-3.9)	2.5 (1.8-3.6)
Physical IPV	16	131	45	486	3.1 (1.7-5.7)	3.7 (1.6-2.6)	2.3 (1.2-4.5)	2.6 (1.7-4.0)
WOMEN	N=150	N=2506	N=442	N=12,309				
Emotional or physical IPV	25	191	81	763	2.9 (1.8-4.7)	4.3 (3.1-6.0)	2.3 (1.3-4.0)	3.0 (2.1-4.4)
Emotional IPV	25	184	73	653	3.0 (1.8-4.9)	4.0 (2.9-5.6)	2.3 (1.3-4.0)	2.8 (1.9-4.0)
Physical IPV	11	82	35	344	2.2 (1.1-4.4)	4.0 (2.4-6.7)	1.6 (0.72-3.5)	2.6 (1.6-4.3)
MEN	N=54	N=1932	N=270	N=10,221				
Emotional or physical IPV	7	123	21	333	3.1 (1.4-6.7)	2.8 (1.6-4.9)	2.7 (1.2-6.2)	2.2 (1.2-4.2)
Emotional IPV	7	106	17	244	3.5 (1.6-7.8)	2.9 (1.5-5.5)	3.1 (1.3-7.2)	2.0 (1.0-4.4)
Physical IPV	5	49	10	142	6.1 (2.1-17.2)	3.0 (1.4-6.4)	4.9 (1.7-14.0)	3.0 (1.2-7.5)

1. Final model included age, sex, ethnicity, marital status, housing tenure, employment status

Table 4-9 APMS study: Past-year healthcare use by those who did or did not experience IPV

Clinical characteristic	% (n) among those with IPV (N=346)	% (n) among those without IPV (N=4296)	Crude OR (95% CI)	P	Adjusted OR (95% CI) ¹	p
Healthcare use in past 12 months						
Any healthcare use	77.5 (268)	69.5 (2986)	1.5 (1.2-2.0)	<0.01	1.5 (1.1-1.9)	<0.01
Healthcare use for physical condition	66.8 (231)	61.4 (2636)	1.3 (1.0-1.6)	0.05	1.3 (1.0-1.7)	0.03
Healthcare use for mental condition:	30.9 (107)	15.8 (680)	2.4 (1.9-3.0)	<0.001	2.0 (1.5-2.7)	<0.001
<i>From GP</i>	27.5 (95)	14.5 (621)	2.2 (1.7-2.9)	<0.001	1.9 (1.4-2.6)	<0.002
<i>From therapist / counsellor</i>	9.5 (33)	3.2 (138)	3.2 (2.1-4.7)	<0.001	2.5 (1.6-3.9)	<0.003
<i>From secondary services</i>	5.5 (19)	2.4 (103)	2.4 (1.4-3.9)	<0.01	1.8 (1.0-3.1)	0.04

1. Adjusted for age, sex, ethnicity, marital status, employment, housing tenure and presence of self-defined chronic mental illness (CMI)

4.10 APMS study: Discussion

The prevalence of CMI in the BCS (2.4%, CI 2.2%-2.7%) and in the APMS (3.3%, CI 3.0%-4.0%) was comparable, although somewhat lower in the former. In the APMS, more than 80% of people with self-reported CMI had one or more psychiatric conditions (of whom 80% had common mental disorders and 8% had a psychotic illness). The majority had sought help from primary care, and about 20% had sought help from secondary mental health services for their mental health problems in the preceding year. This thesis includes studies on people with self-reported CMI as well as patients with SMI (defined as those in receipt of intensive care for ≥ 1 year from secondary mental health services). In order to compare findings across studies it would be helpful to know the extent to which the populations of people with CMI and patients with SMI overlap. The findings in this study suggests that no more than a fifth of those with CMI would be eligible for inclusion in the patient survey- with the rest having either a common mental disorder or no diagnosed mental disorder.

The APMS estimates of the prevalence of partner violence were similar to the BCS estimates among people with CMI, but higher than the BCS estimates for people without CMI. The two surveys had many differences which could account for this, including differences in the response rate, sample size, non-response bias by key socio-demographics and framing of the BCS questions. [67, 171]The framing of IPV questions is known to affect prevalence estimates, [45] and it is possible that people were more willing to disclose IPV in the context of a health survey than a crime survey (although a difference was only found among people without CMI- so this reporting bias may be more pronounced among this group). Nonetheless, despite these differences in the prevalence estimates, the fully adjusted ORs for past-year IPV among people with CMI were similar in the APMS and BCS analyses. Although the findings from each of these surveys were limited by the somewhat low response rate and differential non-participation (e.g. for those with greater disability levels in the BCS), the consistency of the finding of elevated risk across the two surveys suggests that this is unlikely to be due to bias or confounding.

The APMS analysis suggests that healthcare use is increased among IPV victims, with two-thirds seeking help for physical health problems and a third seeking help for mental health problems (mostly in primary care). This provides an opportunity for identification by health professionals.

4.11 Conclusion

Analyses were conducted on data from two UK national surveys that used complimentary and comparable measures of chronic mental illness and partner violence; the British Crime Survey (BCS) and the Adult Psychiatric Morbidity Survey (APMS). In both surveys, around one in five women with CMI reported past-year emotional or physical partner violence; with adjusted relative odds of two to four-fold compared to women without CMI. Findings on IPV prevalence among men was less consistent across the BCS and APMS (7% and 16% respectively), but both surveys found adjusted relative odds of two to three-fold compared to men without CMI.

The APMS findings suggested that IPV victims were more likely to access primary and secondary healthcare services than those who had not experienced IPV. The BCS findings suggested that IPV victims with CMI were more likely to suffer mental ill health following IPV experiences than victims without CMI, and that they were more likely to disclose their experiences exclusively to healthcare professionals.

These findings underline the high burden of IPV among people with pre-existing chronic mental illness, and the key role that health professionals can play in detecting and responding to these experiences. Future studies should assess interventions that increase detection of IPV by professionals, address the adverse consequences of IPV and decrease the risk of re-victimisation.

The next three Chapters focus on violent and non-violent crime against people with SMI, using data from the new patient survey.

Chapter 5. Crime against people with severe mental illness compared with the general population

5.1 Abstract

Background: There is some evidence that people with severe mental illness (SMI) are at high risk of being victims of violence. However, little is known about the extent of increased risk compared with the general population, specific risk factors and the impact of victimisation. This study is the first UK study to investigate the extent, correlates and impact of violent and non-violent crime against people with SMI compared with the general population.

Methods: In this cross-sectional study, a random sample of people with SMI under the care of mental health services was recruited, and interviewed using a modified version of the Office for National Statistics (ONS) national crime victimisation survey. Findings from the patient sample were compared with findings from general population participants in the contemporaneous 2011/2012 ONS crime survey, using multivariate logistic regression.

Results: The study sample comprised 361 people with SMI and 3138 general population controls. Forty percent vs. 14% of patients and controls respectively experienced any crime in the preceding year (OR adjusted for socio-demographics (aOR)=2.8, 95% CI 2.0-3.8); and 19% vs. 3% experienced any violent assaults (aOR=5.3, 95% CI 3.1-8.8). Substance misuse and violence perpetration accounted for the association between SMI and violence victimisation among men, but not among women with SMI (who had elevated adjusted odds of three-fold, ten-fold and four-fold for domestic physical violence, non-domestic physical violence and sexual violence respectively). Victims with SMI were more likely to report psychosocial morbidity as a result of victimisation than general population victims.

Conclusion: People with SMI were more likely to be victims of violent and non-violent crime than the general population. They are at particularly high risk of experiencing violent crime, and are more likely to report adverse psychosocial effects as a result of this victimisation. Violence prevention policies should target domestic and community violence among men and women with SMI.

5.2 Introduction

Chapters 3 and 4 investigated violence against people with self-reported chronic mental illness, most of whom have a common mental disorder such as depression or anxiety, using data from national household surveys. Chapters 5-7 will focus on violence against patients with severe mental illness, namely psychotic illnesses such as schizophrenia or bipolar disorder, using data from a new patient survey in secondary mental healthcare settings. The prevalence of SMI is low in the general population, so the experiences of this group are not fully captured by general household surveys. The use of a psychiatric patient population for the SMI study has two advantages; the recruitment of an adequate number of people with SMI, and the potential clinical relevance of study findings.

This chapter details the methods of the patient survey, and presents the findings on any violent or non-violent crime against SMI patients compared with the general population. Chapter 6 focuses on domestic and sexual violence against this population. Chapter 7 focuses on risk factors and context for violence victimisation among SMI patients.

Violence experienced by people with severe mental illness (SMI) is associated with poor symptomatic and functional recovery, high rates of co-morbid post-traumatic stress disorder and poor treatment adherence. [37, 172-174] Violence prevention is a current public health priority [91] [175] but little is known about whether violence against people with SMI differs substantially (in terms of nature, impact and reporting of crime) from violence against the general population.

There are no UK based studies that have compared crime victimisation among those with versus without SMI. The systematic review reported in Chapter 2 identified a handful of international studies on victimisation among people with SMI compared with non-psychiatric controls; conducted in the USA, Europe (Sweden and Greece), Taiwan and New Zealand. All of these studies found elevated odds of victimisation among the SMI population, ranging from two-fold to eleven-fold.

Past studies have a number of methodological limitations. Firstly, only two studies took into account potential socio-demographic confounders. [15, 22] People with

SMI tend to have much greater levels of social deprivation than the general population, [176] and social deprivation is in turn associated with the risk of victimisation, so it is important to adjust for potential confounding by socioeconomic factors. [39, 53, 177]. Secondly, none of the studies reported separately on domestic and community violence. This is an important omission, since these types of violence have distinct recommended interventions. [175] [91] Thirdly, only two studies reported findings separately for men and women. [15, 23] In the general population, gender is one of the strongest correlates of victimisation risk, [16] but there is a suggestion that this gender gap is narrowed among people with SMI. [68] It is important to establish risk by gender, since this would guide targeted interventions. Lastly, none of the studies compared the reporting and impact of crime among patients and controls. There is evidence that people with SMI find it difficult to access the criminal justice system (CJS), [18] and are less likely to secure convictions for serious crimes when these cases reach the courts. [49] However, there is limited evidence directly comparing contact with the CJS following victimisation in patients and controls. International law protects the rights of people with disability, including those with SMI, to equal access to justice, [29] so it is important to investigate the extent of any inequalities.

In order to address these evidence gaps, a new crime victimisation survey was conducted in patients from two NHS trusts in London. The survey was designed to closely match the ONS's Crime Survey for England and Wales, so that findings from the patient survey could be compared to findings from the ONS's general population survey. This chapter details the methods of the patient survey, and then presents findings that compared the prevalence and correlates of any past-year personal or household crime against people with SMI compared with the general population. The next chapter presents findings that compared the prevalence and correlates of domestic and sexual violence in patients and ONS controls. Chapter 7 presents qualitative and quantitative analyses restricted to the patient sample.

5.3 Aims and hypotheses

For the study reported in this chapter, the primary hypothesis was that, compared to members of the general population, people with SMI would be at increased risk of

being victims of personal and household crime, after taking into account socio-demographic confounders. Secondary hypotheses were that

- (a) The elevated risk of violent victimisation would be accounted for by social deprivation, substance misuse and violence perpetration.
- (b) Victims with SMI would be more likely to suffer adverse psychological and social sequelae than victims without SMI.
- (c) Victims with SMI would be less likely to report victimisation than victims without SMI.

Finally, in order to enable comparisons between those with SMI and those with self-reported chronic mental illness (as defined in Chapters 3-4), the study aimed to compare the prevalence and relative risk of violent victimisation among BCS respondents with and without self-reported CMI and patients with SMI.

5.4 Methods

This study compared data from a new cross-sectional patient survey with data from the 2011/2012 ONS Crime Survey for England and Wales (CSEW). The ONS survey methods were detailed in chapter 3, and key elements of relevance to this study are summarized below. The patient survey methods are detailed in section 5.4.2

5.4.1 The ONS survey

The ONS cross-sectional survey recruited a nationally representative random sample of people living in private residential households in England and Wales. [130] The inclusion criteria for the comparison sample used in this study were (a) participants in the 2011/2012 CSEW (b) resident in any of London's 32 boroughs (c) aged 18-65. Controls with self-reported limiting disability due to mental illness were excluded from the main analyses.

For the additional analysis which compared victimisation among BCS respondents with and without CMI and patients with SMI, the national BCS sample was used (as

the number of London residents with CMI was too small to enable adequate analyses. BCS respondents were included if they were aged 18-65.

The ONS national crime survey was conducted by lay interviewers in participants' homes. [128] It comprised (a) a face-to-face interview (b) an opt-in self-completion questionnaire (typically taken up by 80% of eligible respondents). [128] The measures used in this study are detailed in section 5.4.3.

5.4.2 The patient survey

5.4.2.1 Overview

The patient survey was developed jointly by me and colleagues at University College London (UCL) and the Institute of Psychiatry. My role in the design and conduct of this survey is outlined in the preface. This included the following:

- defining the main study question and hypotheses
- writing the study proposal and submitting this for ethics and R&D approval
- modifying the ONS Crime Survey Questionnaire for use in this study
- choosing additional measures for use in the patient survey (either by adapting existing instruments or adding new questions as appropriate)
- creating and managing the online-based questionnaires for the patient survey (using the UCL-based software 'Opinio')
- planning and conducting pilot interviews
- conducting patient interviews (N=47)
- supervising the work of two Clinical Support Officers, who conducted a further 29 interviews
- obtaining ONS Approved Researcher Status to enable access to sensitive ONS crime survey data
- carrying out data cleaning and coding
- conducting all data analyses
- preparing manuscripts for publication (as detailed in the preface)

The survey was designed to: (1) enable comparisons with the ONS national crime survey (2) to address further related research questions within the patient population. After piloting the survey instrument with patient volunteers, the final survey comprised a modified version of the CSEW questionnaire; and additional measures from patients, clinical records and health professionals. All patient survey

instruments are included in the enclosed CD-ROM. The Patient Information Sheet and Consent Forms are copied in the Appendix.

5.4.2.2 Service user involvement and survey pilot

In the planning stages of the survey, the Camden and Islington Service User Research Forum (SURF) were consulted on the study design and content. SURF members were supportive of the study's aim, and generally positive about the proposed methods. They endorsed recruitment via care co-ordinators. Following their feedback, questions were added on financial exploitation (not reported here).

The survey instrument was piloted by two interviewers with eleven patient volunteers, to assess acceptability and feasibility. The participants had varied demographic and clinical characteristics, including a patient with dyslexia. In general, participants found the information sheets, consent forms and survey instruments clear and acceptable. Following feedback, patient interview questions were re-ordered to improve logical flow. The questions relating to the main outcome, crime victimisation, were still used in the same order as in the national crime survey. Some non-essential questions were removed to reduce participant burden. Additional open-ended questions were added to the victimisation module, since the closed questions did not fully capture important aspects of patients' experiences. Although most patients were able to complete the computer-based self-completion modules, some wanted or needed assistance with this from the interviewer.

5.4.2.3 Study design, setting & participants

The patient survey was a cross-sectional study. Patients were recruited using simple random sampling. The sample was recruited from nineteen community mental health teams (CMHTs), Early Intervention Service Teams and Assertive Outreach Teams in two National Health Service (NHS) mental health organisations: Camden and Islington NHS Foundation Trust and South London and Maudsley NHS Foundation Trust. These Trusts cover a large diverse catchment area of 1.5 million people living in one of six London boroughs (Camden, Islington, Southwark, Lambeth, Lewisham and Croydon).

CMHTs serve people who require secondary mental health care (mainly those with affective and non-affective psychosis, but also those with severe non-psychotic mental disorders). Those requiring on-going care are assigned a named key-worker, who plans and co-ordinates their care. Central IT registers were used to identify all patients with a named care co-ordinator in the included teams, and a random sample was random from which participants were recruited. The research interviews were conducted over the period Sep/11-Mar/13.

Inclusion criteria for patients were (a) age 18-65 (b) under the care of CMHTs in one of six London boroughs for one year or more (c) living in the community (i.e. not in long-stay rehabilitation wards). Exclusion criteria were poor English language proficiency and lack of capacity to consent.

5.4.2.4 Survey structure and content

The patient survey structure is shown in Figure 5-1. It comprised:

- A modified version of the Crime Survey for England and Wales (CSEW) questionnaire (comprising a main face-to-face interview and a self-completion questionnaire)
- Additional modules specific to the patient survey, including:
 - Additional measures in the patient interview (some added to the main interview and others added to the self-completion module)
 - A clinical records module
 - A health professional interview

All patients completed the main interview. Separate consent was sought for the self-completion module, access to the electronic clinical records and interviews with the respondent's care co-ordinator.

The modified CSEW: The CSEW was modified by omitting modules that were not relevant to the study's aims. The questions relating to the main outcome (past-year crime victimisation) were left unchanged. Other questions were simplified where necessary (e.g. by collapsing list items or omitting follow-up questions). The order of the interview was changed to accommodate the additional modules. The number of open-ended questions at the beginning of the victimisation module was increased, to enable qualitative analysis of the nature and impact of these experiences among patients. (See CD-ROM, main module & self-completion module, for details)

Additional patient measures: The additional measures in the patient interview were chosen to address study questions on risk factors for victimisation, guided by the conceptual framework in Chapter 1 and the systematic review in Chapter 2. These risk factors were measured using reliable and validated instruments, as detailed in **Table 5-1**. These include the following:

- Alcohol Use Disorders Identification Test (AUDIT): This is a 10-item World Health Organization screening tool, scored out of 40, with a score of 8 or more indicating hazardous drinking or dependence. This cut-off score has a sensitivity of 92% and a specificity of 94%. [178] In this study, a binary variable with this cut-off of 8 or more was used.
- McArthur Community Violence Instrument (MCVI): This instrument was developed in the course of the McArthur Violence Risk Assessment Study, and includes a number of yes/no questions on whether the respondent had perpetrated certain acts of violence, ranging from the minor (e.g. slapped/pushed/shoved) to the severe (e.g. injured someone with a weapon, caused a death). [179] In this study, a ten-item version of the questionnaire was used (see CD-ROM for details), with violence measured 'in the past year', and 'ever before'. A binary variable was generated for 'past year violence' and 'violence ever before', which categorized respondents as screen positive if they said yes to any of the screening questions.
- Childhood Trauma Questionnaire (CTQ): This is a 28-item self-report questionnaire, which measures experiences of childhood abuse. It has 5 subscales for emotional, physical and sexual abuse; and for emotional and physical neglect. [180] Each subscale has cut-off scores indicating four categories of abuse severity (none-mild, mild-moderate, moderate-severe and severe-extreme). In this study, a binary measure was used, where respondents were classed as screen positive if their scores for one or more of the five subscales indicated moderate to extreme abuse. Using this cut-off, the instrument has a specificity of 95% and sensitivity of 49-72% (across different validation samples). [181]
- Standardised Assessment of Personality Abbreviated Scale (SAPAS): This is an 8-item dichotomously-rated screening tool for personality disorder. A

cut-off score of 4 or more has a sensitivity of 82% and a specificity of 89%. [182] In this study, a binary variable with this cut-off of 4 or more was used.

- **Social Functioning Questionnaire (SFQ):** This is an 8-item self-report questionnaire (score range 0-24), with a general population mean score of 4.6, and a score of 10 or more indicating poor social function. The total score distribution was found to be skewed in a general population but normally distributed in a psychiatric population.[183] In this study, the total score was used to generate tertiles of social function (with 0-5 indicating good function, 6-10 intermediate function and 11-20 poor function).

Although the CSEW included questions on alcohol use and self-reported offending, these were brief and poorly validated, so the additional validated measures listed in **Table 5-1** were used. Nonetheless, the original CSEW questions were also included, to enable comparisons with national survey data. For violence perpetration, the validated McArthur questionnaire was used. Since this instrument does not focus on domestic violence perpetration, an additional new measure of domestic and sexual violence perpetration was included, which was based on the CSEW victimisation questions for these forms of violence. (See CD-ROM, self-completion module for details)

Clinical records module: The clinical records module included measures on: (1) clinical status; to characterise the patient sample and investigate victimisation correlates (2) recording of victimisation and perpetration by the patient; to triangulate patients' reports of these outcomes (see CD-ROM, records module for details)

Health professional interview: Care co-ordinator interviews included (1) measures related to the patient participating in the survey (clinical status, knowledge on victimisation / perpetration by the patient) (2) measures related to the health professionals' general experiences and views (re asking about victimisation, offering support following disclosure and using formal risk management processes) (see CD-ROM, health professional module for details).

Figure 5-1 Patient survey structure

(Items not in italics were adapted from the CSEW, whilst those in italics were added to the patient survey only)

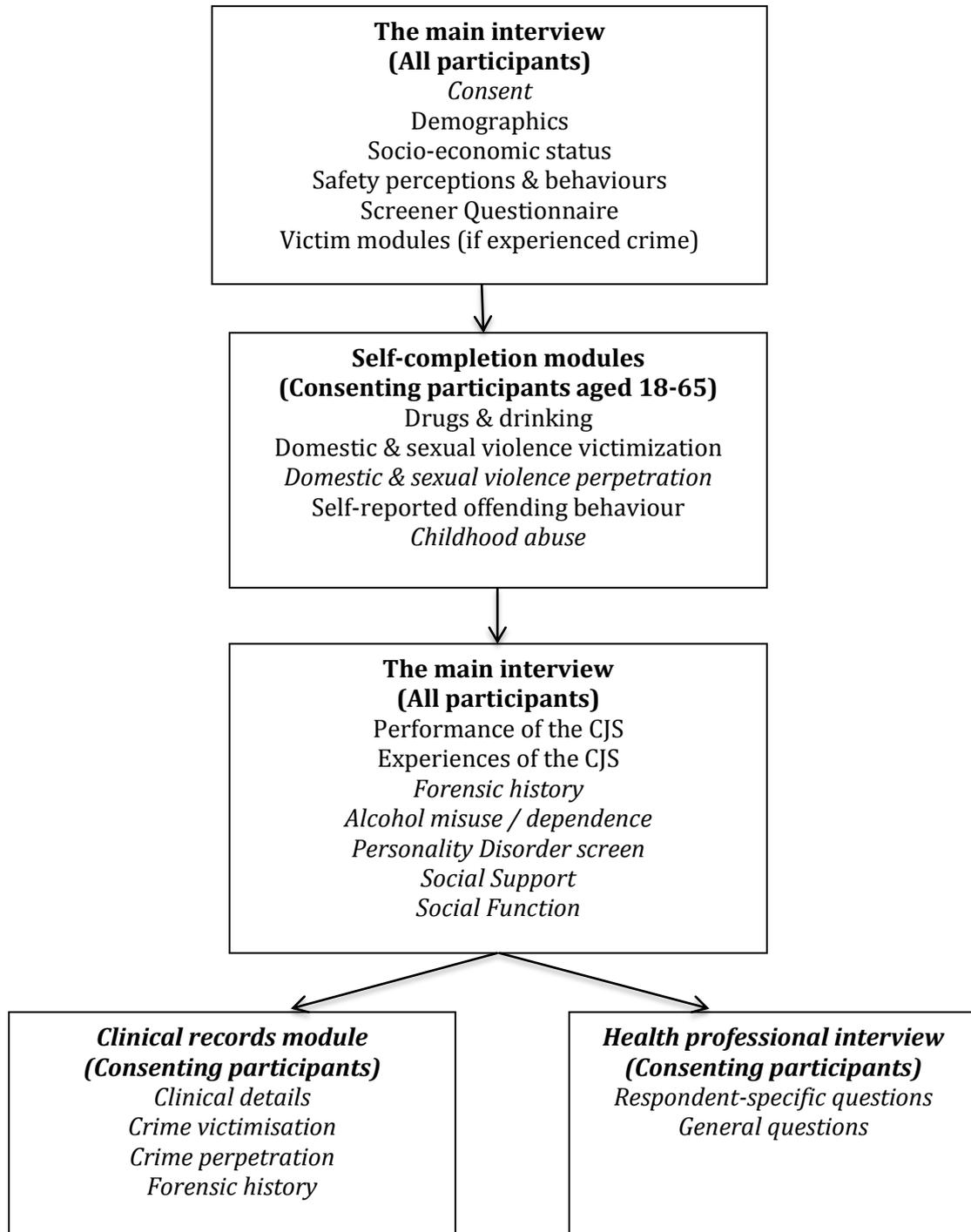


Table 5-1 Additional patient survey measures and related instruments

Measure	Instrument
Alcohol misuse	Alcohol Use Disorders Identification Test (AUDIT) [178]
Violence perpetration	Modified McArthur Community Violence Instrument [179] New domestic and sexual violence perpetration questionnaire (based on CSEW victimisation questions) [184]
Childhood trauma	Childhood Trauma Questionnaire-Short Form [180]
Personality Disorder	Standardised Assessment of Personality-Abbreviated Scale (SAPAS) [182]
Social support	Medical Outcomes Study Social Support Survey (MOS-SSS) [185]
Social function	Social Functioning Questionnaire (SFQ) [183]

5.4.2.5 Interview procedures

The patient survey was conducted by one of six interviewers (3 psychologists, 1 psychiatrist and 2 research assistants). One interviewer from each site attended ONS CSEW interviewer training and trained the others, in order to keep interview procedures as similar as possible to the ONS survey.

As with the ONS survey, all patients were interviewed face-to-face and were then invited to participate in the self-completion module. Computer-assisted interviews were used where possible (with interviewers entering response for the face-to-face interview, and patients entering their own responses in privacy for the self-completion module) - otherwise paper-based questionnaires were used. Patients who asked for assistance with the self-completion module were given the option of having the domestic and sexual violence questions read out to them by the interviewer; whereas these questions were always omitted in similar circumstances in the ONS survey. This was done in order to include the more severely ill patients,

who were more likely to ask for assistance. All interviews were held in a quiet confidential location.

Unlike the ONS survey, where interviews were held in participants' homes, patient interviews were either held in a clinical setting (86%) or in the patient's home (14%), depending on participant choice.

5.4.2.6 Data management

Patient survey instruments were created using the software Opinio, hosted by UCL. The instruments were made available to all interviewers via secure web links. Responses were entered electronically at each interview site, either at the time of the interview (if electronic questionnaires were used), or shortly afterwards (if paper-based questionnaires were used). Responses were automatically uploaded to a central secure server based at UCL. All responses were downloaded in Excel and Stata format. No identifying data was stored with these datasets.

Respondent postcodes were recorded and temporarily stored in a separate, password-protected database. Postcodes were used to derive local area deprivation indices using the GeoConvert website. [186] This is an online geographical conversion tool, created by experts at Manchester University, which is freely available to researchers at UK universities. Deprivation indices derived from GeoConvert were added to the results dataset.

For studies comparing patient survey data with ONS survey data, the datasets were harmonised for relevant measures, then merged for analysis.

All data was stored and handled in accordance with national and local research and data protection governance frameworks.

5.4.3 Measures used in this study

The primary exposure was severe mental illness (as defined by the patient inclusion criteria above; namely chronic mental disorder requiring on-going secondary mental health care).

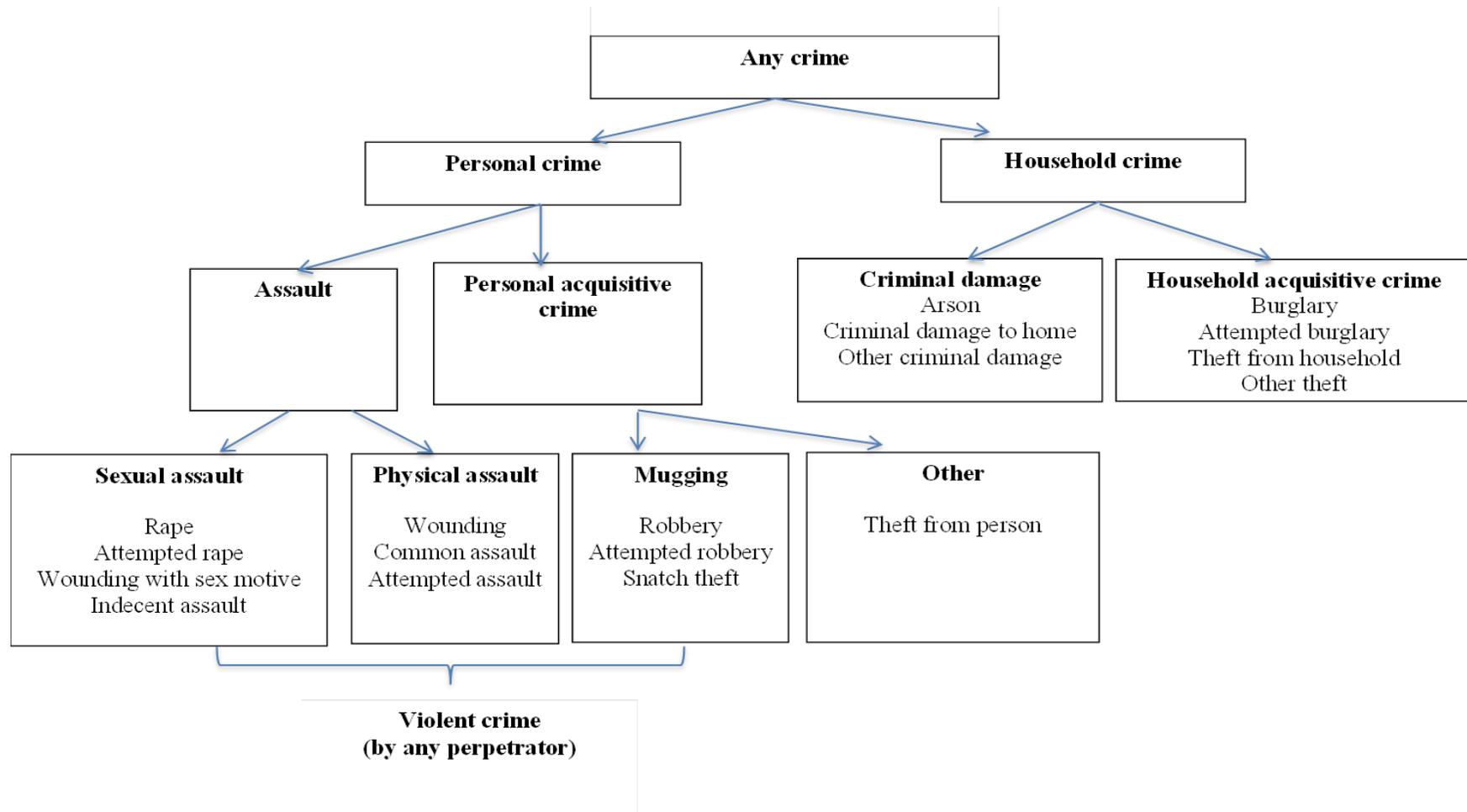
The primary outcome was being a victim of violent or non-violent crime in the past year among those aged 18-65, as disclosed in the face-to-face interview. Following CSEW definitions, 'crime' referred to experiences disclosed by participants, whether or not they were reported to the police. Personal crime was defined as (a) any physical or sexual assault, (b) personal acquisitive crime (robbery, attempted robbery, theft from the person, theft of personal belongings). Household crime was defined as (a) criminal damage, (b) household acquisitive crime (burglary or attempted burglary, theft from household). The key secondary outcome was being a victim of any physical or sexual violence in the past year among those aged 18-59, as disclosed in either the face-to-face interview or self-completion module. This included domestic violence (perpetrated by partners or family members) and community violence (perpetrated by strangers or acquaintances). See Figure 5-2 for details.

The following additional outcomes of interest were limited to people who reported being victims of violence in the face-to-face interviews: (a) impact of violent crime, measured by asking victims if they had reported one or more the following as a result of victimisation: depression, anxiety or panic attacks; loss of confidence; relationship breakdowns; financial loss; time off work; physical illness; injury (b) reporting of violent crime to the police and satisfaction with police response (c) among patients, reporting to mental health professionals and unmet needs.

Potential confounders, identified a priori from the literature, were: age, sex, ethnicity, marital status, living alone, employment status, housing tenure, small area multiple deprivation index (MDI; a composite measure of deprivation in administratively-defined areas of around 1500 residents) and Output Area Characteristics (OAC; whereby areas are classified by census-derived socio-demographic characteristics). Potential explanatory factors were substance misuse and violence perpetration. The violence perpetration questions were only available for a quarter of the ONS participants (the National Crime Survey has four modules which are each asked of a random quarter of the sample in order to decrease interviewee burden, and the violence perpetration questions were included in one of these modules).

For the patient sample, we obtained clinical information from clinical records and / or care co-ordinators where patients consented to this. Clinical diagnosis was defined as the primary ICD-10 diagnosis given in the clinical records (or if access to records was not consented to, the diagnosis given by the health professional).

Figure 5-2 Definition of crime victimisation



5.4.4 Statistical analysis

Hsie's method was used to estimate sample size (a widely used method for estimating sample sizes for logistic regression). [187] This estimates the required sample size to detect the effect of a main exposure on a binary outcome after adjusting for multiple covariates. It requires the following estimates:

- The prevalence of the exposure in the study sample
- The prevalence of the outcome in exposed and unexposed groups
- The R^2 achieved when the main exposure is regressed on the other covariates

The sample size was estimated using software that employs Hsie's methodology (PASS 11.0) (<http://www.ncss.com/pass.html>). The following parameters were used:

- The prevalence of past year violent victimisation was conservatively estimated to be 10% in SMI patients and 3% in the general population, based on past literature.
- The R^2 (for the regression of SMI on the co-variables outlined in section 5.4.3) was conservatively estimated at 0.20.
- The widely recommended unexposed (general population): exposed (SMI patients) ratio of 4:1 was used. [98]

In order to detect an OR of 3.0 with a power of 90% and a precision (alpha) of 5%, the estimated sample size was 1350 (270 in the patient sample and 1080 in the general population sample).

To address the primary hypothesis, multivariate logistic regression was used to estimate odds ratios for crime victimisation in those with and without SMI, adjusting for the potential confounders listed above. The association between SMI and victimisation was tested for interaction by gender.

To address the secondary hypothesis on violence victimisation, the odds for this outcome were estimated, stratified by gender (since one of the aims of the study was to investigate this outcome separately for men and women). Co-variables were entered in three sequential blocks: (1) demographics, (2) social deprivation and (3) substance misuse / violence perpetration); in order to explore to what extent these domains accounted for any excess victimisation risk (see Table 5-7 and Table 5-8 for details on covariates).

To address secondary hypotheses on impact and disclosure, the relative odds of these outcomes were estimated among violence victims with and without SMI, adjusting for victim and crime characteristics (see Table 5-9 for details).

A sensitivity analysis was conducted, estimating the adjusted odds for any crime victimisation among patients and a comparison subgroup matched on borough of residence (restricted to controls who lived in the six London boroughs from which patients were recruited) (see Table 5-5).

A subgroup analysis was conducted for any crime victimisation by diagnosis, comparing patients with schizophrenia vs. those with other diagnoses vs. controls (see Table 5-6).

Where there was missing data on more than 5% for a secondary outcome, the distribution of missing data was described across patients and controls, and sensitivity analyses were carried out to explore potential bias arising from missing data (especially those relating to reporting of crime).

5.5 Results

5.5.1 Sample flow and characteristics

We recruited patients from 19 community mental health teams. Of 1099 patients randomly selected from CPA registers for these teams, 697 (63%) were eligible for this study, of whom 361 (52% response rate) completed the survey in Sep/11-Mar/13 (see Figure 5-3 for details). For the control group data from the CSEW conducted in Apr/11-Apr/12 (the most recently available CSEW data) were used, which had a response rate of 68% for London residents. [130] Of the 3224 CSEW participants aged 18-65 living in London, 3138 met our control inclusion criteria, after excluding 86 (2.7%) participants who reported disabling mental illness. Data on domestic violence from self-completion modules were available for 85% (292/345) of patients and 74% (2092/28129) of controls aged 18-59.

The sample socio-demographics are shown in Table 5-2. People with SMI had greater levels of social deprivation than the comparison group. The clinical characteristics of the patient sample are shown in Table 5-3. 58% had a diagnosis of schizophrenia, and 51% had a history of admission under the Mental Health Act.

Figure 5-3 Sample flow for patients and controls

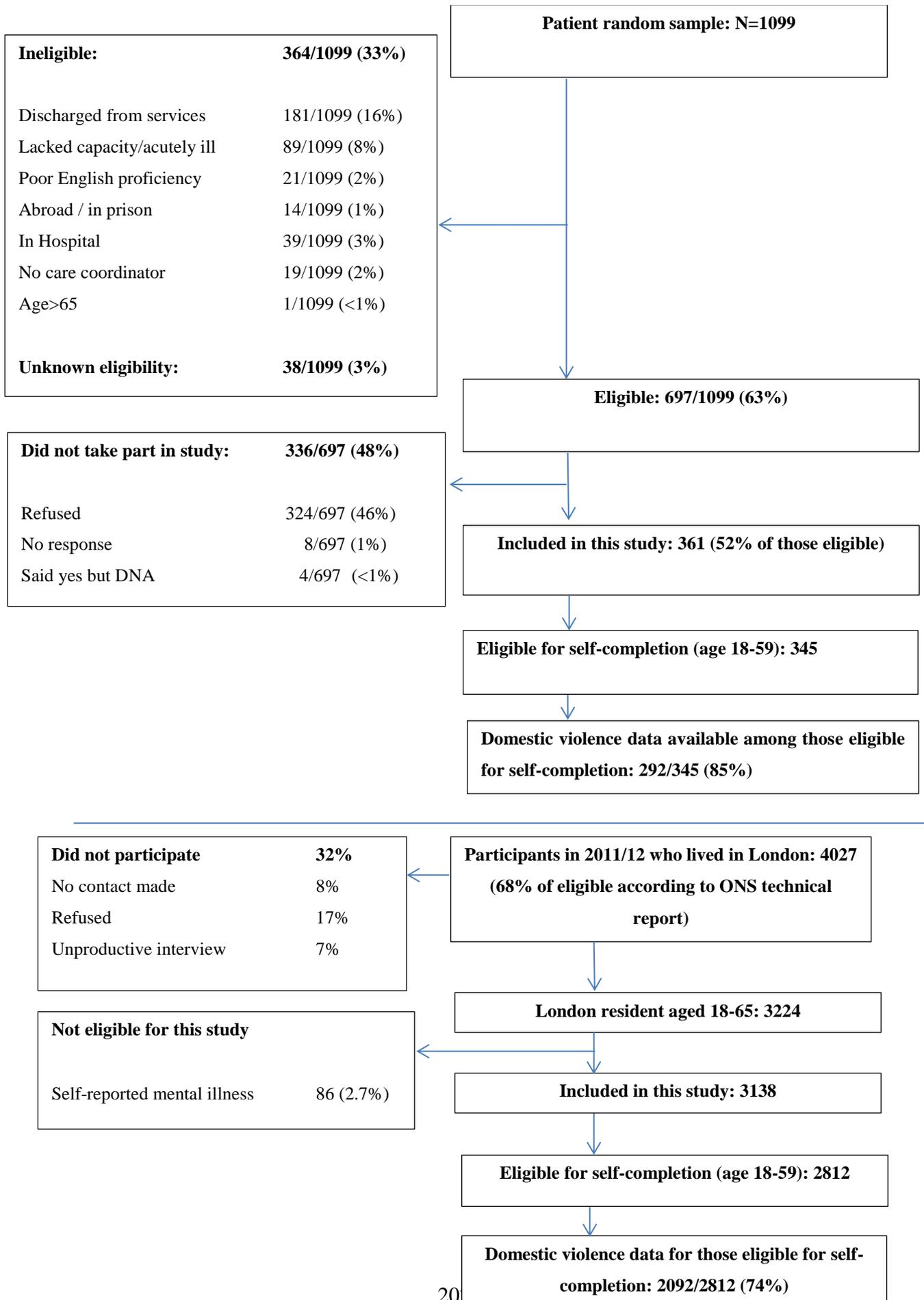


Table 5-2 Socio-demographic characteristics of patients and controls

Characteristic ¹	Patients (N=361) % (n)	Controls (N=3138) % (n)
Age: mean (sd)	41.8 (0.57)	40.9 (0.22)
Sex		
Male	56.2 (203)	46.0 (1445)
Female	43.8 (158)	54.0 (1693)
Ethnicity		
White	41.6 (150)	63.4 (1991)
Asian/Chinese/other	35.2 (127)	23.0 (721)
Black/Black British	23.0 (83)	13.4 (419)
Marital status		
Single	72.6 (262)	43.1 (1353)
Married/cohabiting	7.8 (28)	42.6 (1337)
Divorced/separated/widowed	18.3 (66)	14.2 (447)
Educational achievement		
High	27.1 (98)	52.0 (1633)
Low-medium	52.6 (190)	35.6 (1116)
None	19.9 (72)	12.3 (385)
Employment status		
Employed	10.2 (37)	71.3 (2238)
Student/economically inactive	10.5 (38)	19.1 (599)
Sick/Unemployed	79.2 (286)	9.3 (293)
Tenancy		
Owners	6.1 (22)	48.9 (1534)
Private renters	30.7 (111)	30.2 (948)
Council renters	62.9 (227)	20.7 (648)
Area Multiple Deprivation Index quintiles		
Q1: 20% least deprived	0.3 (1)	8.7 (273)
Q2	1.1 (4)	13.6 (428)
Q3	8.9 (32)	20.5 (643)
Q4	36.3 (131)	30.2 (948)
Q5: 20% most deprived	52.4 (189)	27.0 (846)
Output area classification		
Multicultural	84.5 (305)	58.1 (1824)

1. All characteristics differed between patients and controls at the 5% significance level

Table 5-3 Clinical characteristics of patient sample

Clinical Characteristic	% (n), N=361
Diagnosis	
Schizophrenia and related disorders	58.4 (211)
Bipolar affective disorder	12.5 (45)
Depression & other mood disorders	9.7 (35)
Personality disorders	8.0 (29)
Other ^a	9.1 (33)
Missing	2.2 (8)
Illness onset more than 10 years ago	47.4 (171)
History of admission under Mental Health Act	51.2 (185)
More than 5 admissions	12.5 (45)

- a. 'Other' diagnoses included: neurotic & stress-related disorders n=8; organic mental disorders, mental retardation/disorders of psychological development n=8, mental disorders due to substance misuse n=9, unspecified mental disorder n=8

5.5.2 Crime victimisation: face-to-face interview measures

Table 5-4 shows the prevalence and odds ratios for victimisation experiences reported in the face-to-face interview. The experience of being a victim of any crime was more prevalent among patients than controls (40% vs 14% respectively; odds ratio adjusted for socio-demographics (OR)=2.8, CI 2.0-3.8). Twenty-six percent of patients vs 6% of controls were victims of any personal crime (OR=3.0, CI 2.1-4.4) and 23% vs 9% were victims of any household crime (OR=2.9, CI 2.1-4.0). Patients were at increased adjusted odds of being a victim of assault (OR 5.3, CI 3.1-8.8), household acquisitive crime (OR 2.7, CI 1.9-3.8) and criminal damage (OR 3.4, CI 1.8-6.3); but not of personal acquisitive crime (OR=1.4, CI 0.83-2.4). There was an interaction by gender for assault, where adjusted OR for women with SMI compared to control women was 12.0 (95% CI 5.4-26.5), and adjusted OR for men with SMI compared to control men was 3.0 (95% CI 1.5-6.0) (p for interaction=0.02).

The results of the sensitivity analysis, which compared patients and controls residing in the same boroughs, are reported in Table 5-5, and broadly reflect the findings above. The subgroup analyses for people with schizophrenia vs. those with other diagnoses vs. the general population show somewhat lower relative odds for those with schizophrenia, but with overlapping confidence intervals for most outcomes (see Table 5-6).

Table 5-4 Prevalence and odds ratios of past-year personal and household crime victimisation in patients and controls (main interview measures)

	Patient n (N=361)	Patient prevalence, % (95% CI)	Control n (N=3138)	Control prevalence, % (95% CI)	OR model 1 ^b (95%CI)	p value	OR model 2 ^c (95% CI)	p value	p for patient*sex interaction
ANY CRIME	145	40.2 (35.1-45.2)	442	14.1 (12.9-15.3)	4.2 (3.3-5.3)	<0.001	2.8 (2.0-3.8)	<0.001	0.27
ANY PERSONAL CRIME	95	26.3 (21.8-30.9)	204	6.5 (5.6-7.4)	5.4 (4.1-7.2)	<0.001	3.0 (2.1-4.4)	<0.001	0.81
Assault	68	18.8 (14.8-22.9)	88	2.8 (2.2-3.4)	8.2 (5.8-11.7)	<0.001	5.3 (3.1-8.8)	<0.001	0.02 ^d
Acquisitive crime	33	9.1 (6.2-12.1)	127	4.0 (3.3-4.7)	2.6 (1.7-3.9)	<0.001	1.4 (0.83-2.4)	0.2	0.31
ANY HOUEHOLD CRIME ^a	84	23.3 (18.9-27.6)	268	8.5 (7.6-9.5)	3.3 (2.6-4.3)	<0.001	2.9 (2.1-4.0)	<0.001	-
Criminal damage	20	5.5 (3.2-7.9)	55	1.7 (1.3-2.2)	2.9 (1.8-4.5)	<0.001	3.4 (1.8-6.3)	<0.001	-
Acquisitive crime	71	19.7 (15.6-23.8)	228	7.3 (6.4-8.2)	3.4 (2.6-4.4)	<0.001	2.7 (1.9-3.8)	<0.001	-

- a. Although only one adult per household was interviewed, 'household crime' was defined as crime experienced by any household member, hence ORs for these outcomes were not adjusted for personal characteristics of the respondent
- b. For any crime & personal crime: adjusted for age & sex; for household crime: unadjusted OR
- c. For any crime & personal crime: adjusted for age, sex, ethnicity, marital status, employment status, living alone, housing tenure, MDI quintiles, OAC type; for household crime: adjusted for living alone, housing tenure, MDI quintiles, OAC type
- d. There was interaction by sex for assaults only, where adjusted OR for women was 12.0 (95% CI 5.4-26.5) and for men was 3.0 (95% CI 1.5-6.0). The prevalence among female patients and controls was 20.2 (CI 14.0-26.5) versus 2.2 (CI 1.5-2.9) respectively; and among male patients and controls 17.7 (CI 12.5-23.0) versus 3.5 (CI 2.4-4.4) respectively.

Table 5-5 Prevalence and odds ratios for personal and household crime victimisation among patients and a subgroup of controls matched on borough of residence (main interview measures)

	Patients % (n/N)	Controls % (n/N)	OR model ^a (95% CI)	p	OR Model 2 ^b (95%CI)	p
ANY CRIME	40.2 (145/361)	14.6 (94/645)	4.1 (3.0-5.7)	<0.001	2.4 (1.5-3.7)	<0.001
Any PERSONAL CRIME	26.3 (95/361)	8.1 (52/645)	4.5 (3.1-6.5)	<0.001	2.6 (1.5-4.6)	<0.01
Assaults	18.8 (68/361)	3.4 (22/645)	7.3 (4.4-12.3)	<0.001	6.3 (3-13.2)	<0.001
Acquisitive crime	9.1 (33/361)	4.7 (30/645)	2.2 (1.3-3.7)	<0.001	1.1 (0.53-2.4)	0.75
ANY HOUSEHOLD CRIME	23.3 (84/361)	7.4 (48/645)	3.9 (2.6-5.7)	<0.001	2.3 (1.3-4.1)	<0.01
Criminal damage	5.5 (20/361)	1.2 (8/645)	5.2 (2.2-12)	<0.001	8.2 (2.5-27.2)	<0.01
Acquisitive crime	19.7 (71/361)	6.5 (42/645)	3.6 (2.4-5.4)	<0.001	1.8 (1-3.4)	0.05

a. For any crime & personal crime: adjusted for age & sex; for household crime: unadjusted OR

b. For any crime & personal crime: adjusted for age, sex, ethnicity, marital status, employment status, living alone, housing tenure, MDI quintiles, OAC type; for household crime: adjusted for living alone, housing tenure, MDI quintiles, OAC type

Table 5-6 Prevalence and odds ratios of personal and household crime victimisation in patients with and without schizophrenia vs. controls (main interview measures)

	Prevalence			Patients with SZ vs. controls		Patients with other diagnoses vs. controls	
	Controls (N=3138)	Patients with schizophrenia (N=214)	Patients with other diagnosis (N=139)	OR (95% CI)	p-value	OR (95%CI)	p-value
ANY CRIME ^a	14.1	37.4	44.4	2.3 (1.6-3.4)	<0.001	3.3 (2.2-5.0)	<0.001
ANY PERSONAL CRIME ^a	6.5	23.2	30.3	2.3 (1.4-3.7)	<0.001	3.6 (2.3-5.7)	<0.001
Assault	2.8	17.5	19.7	3.9 (2.1-7.2)	<0.001	5.7 (3.1-10.5)	<0.001
Acquisitive crime	4.0	7.1	12.7	1.0 (0.53-2.1)	0.89	1.9 (1.0-3.5)	<0.001
ANY HOUEHOLD CRIME ^b	8.5	22.3	24.6	2.7 (1.8-4.0)	<0.001	3.3 (2.2-5.1)	<0.001
Criminal damage	1.8	4.3	7.7	2.2 (1.0-5.2)	0.06	4.6 (2.2-9.5)	<0.001
Acquisitive crime	7.3	19.9	19.0	2.8 (1.9-4.3)	<0.001	2.8 (1.8-4.4)	<0.001

- a. For any crime & personal crime: adjusted for age, sex, ethnicity, marital status, employment status, living alone, housing tenure, MDI quintiles, OAC type; for household crime: adjusted for living alone, housing tenure, MDI quintiles, OAC type
- b. Although only one adult per household was interviewed, 'household crime' was defined as crime experienced by any household member, hence ORs for these outcomes were not adjusted for personal characteristics of the respondent

5.5.3 Physical and sexual assaults: face-to-face interview and self-completion measures

Table 5-7 shows the prevalence and odds ratios for assaults reported in either the face-to-face interview or self-completion module. The prevalence of any past-year physical or sexual violence in patients vs. controls was 27% vs. 5% for women and 23% vs. 5% for men. The odds for any violence victimisation, adjusted for socio-demographics and substance misuse, were 6.4 (CI 3.1-13.1) among women and 2.7 (CI 1.2-5.8) among men. Women with SMI were at increased adjusted odds of all subtypes of violent victimisation; including domestic physical violence (OR 3.5, CI 1.3-9.7), community physical violence (OR 10.3, CI 3.4-31.7) and sexual violence (OR 3.7, CI 1.1-11.8). Men were at increased risk of being a victim of domestic physical violence (OR 3.9, CI 1.03-15.2), but their risk of community physical violence was not elevated at the 5% significance level (OR 2.2, CI 0.9-5.3). The absolute number of men reporting sexual violence was too small to allow for stable estimates.

The effect of adjusting for different risk factors on the association between SMI and violence victimisation is shown in Table 5-8. Adjustment for social deprivation resulted in little change in the magnitude of the association, whilst additional adjustment for substance misuse and violence perpetration led to a sizeable reduction. After taking into account socio-demographics, substance misuse and violence perpetration, the adjusted odds of violence victimisation was 1.9 (CI 0.53-6.8) among men and 7.7 (CI 2.5-23.7) among women. Therefore, these factors accounted for the excess risk among men but not among women with SMI.

Table 5-7 Prevalence and odds ratios of past-year violence victimisation among patients and controls, by gender (main interview & self-report measures)

	Patient n/N	Patient prevalence, % (95% CI)	Control n/N	Control prevalence, % (95% CI)	OR adjusted for age & sex (95% CI)	p	Fully adjusted OR ^a (95% CI)	p
WOMEN								
Any assault	35/128	27.3 (19.6-35.1)	60/1114	5.4 (4.1-6.7)	8.7 (5.2-14.4)	<0.001	6.4 (3.1-13.1)	<0.001
Physical assault	30/128	23.4 (16.1-30.8)	39/1114	3.5 (2.4-4.6)	11.2 (6.3-19.7)	<0.001	6.3 (2.9-13.7)	<0.001
Sexual assault	12/128	9.4 (4.3-14.4)	26/1114	2.3 (1.4-3.2)	4.6 (2.1-10.0)	<0.001	3.7 (1.1-11.8)	0.03
Domestic assault ^b	15/128	11.7 (6.1-17.3)	20/1114	1.8 (1.0-2.6)	8.3 (3.9-17.7)	<0.001	3.5 (1.3-9.7)	0.01
Community assault ^c	16/128	12.5 (6.7-18.2)	20/1114	1.8 (1.0-2.5)	10.8 (5.3-22.1)	<0.001	10.3 (3.4-31.7)	<0.001
MEN								
Any assault	38/164	23.2 (16.7-29.6)	53/978	5.4 (4.0-6.8)	5.6 (3.4-9.1)	<0.001	2.7 (1.2-5.8)	0.01
Physical assault	37/164	22.6 (16.1-29.0)	52/978	5.3 (3.9-6.7)	5.4 (3.3-8.9)	<0.001	2.5 (1.2-5.6)	0.02
Sexual assault ^d	-	-	-	-	-	-	-	-
Domestic assault ^b	11/164	6.7 (2.8-10.5)	18/978	1.8 (1.0-2.7)	4.6 (2.1-10.1)	<0.001	3.9 (1.03-15.2)	0.04
Community assault ^c	28/164	17.1 (11.3-22.9)	32/978	3.3 (2.2-4.4)	6.2 (3.5-11.2)	<0.001	2.2 (0.9-5.3)	0.08

- a. Adjusted for age, ethnicity, marital status, employment, living alone, housing tenure, multiple area deprivation, any drug misuse in past year, frequency of being drunk in past year
- b. Domestic assault: assault perpetrated by partners or family members
- c. Community violence: assault perpetrated by acquaintances of strangers
- d. The absolute numbers among men were too small for reliable estimates

Table 5-8 Exploring risk factors for excess odds of violence victimisation among patients (main interview & self-report violence measures)

Victims of violence: n/N			OR (95% CI) of violence victimisation in patients vs. controls					
	Patients n/N	Controls n/N	Model 1 ^a	<i>p</i>	Model 2 ^b	<i>p</i>	Model 3 ^c	<i>p</i>
Women	32/110	15/277	9.1 (4.5-18.4)	<0.001	11.7 (4.1-33.3)	<0.001	7.7 (2.5-23.7)	<0.001
Men	32/142	14/248	5.7 (2.8-11.4)	<0.001	4.9 (1.4-15.2)	0.01	1.9 (0.53-6.8)	0.32

- a. Adjusted for age
- b. Adjusted for variables in (1) and ethnicity, marital status, employment, living alone, housing tenure, multiple area deprivation
- c. Adjusted for variables in (1) and (2) and any drug misuse in past year, frequency of drunkenness in past year, any past violence perpetration

5.5.4 Impact, reporting and unmet needs among victims of violent crime

A quarter to half of patient victims reported adverse psychosocial effects as a result of violent victimisation, and 80% reported physical injury. Patient victims were more likely to report that violence led to social problems, adverse psychological effects (depression, anxiety or panic attacks) and injury than control victims; with three-five fold higher odds for the latter two after adjusting for victim and crime characteristics. There were no differences in the proportion reporting financial loss or physical ill health following violence experiences (see Table 5-9 for details).

Violent victimisation was reported to the police for 58% of patient victims and 49% of control victims ($p=0.72$), with no difference in reporting, even after adjusting for victim and crime characteristics. Patients were more dissatisfied with the police response (50% vs. 24%, $p=0.02$), but this difference was no longer statistically significant at the 5% level after adjusting for victim / crime characteristics.

A sensitivity analysis was conducted to explore potential non-response bias (since there was unequal missing data between patients and controls on impact and reporting outcomes) (see Table 5-9). All missing data were assumed to be negative (i.e. assumed that violence had no adverse impact / that it was not reported to the police). The same conclusions were reached following this analysis as following the main analysis reported above.

Among SMI violence victims, 68% reported their experiences to a mental health professional (MHP) and 55% had unmet support needs; with around a third reporting an unmet need for 'talking help', help with the Criminal Justice System process or practical / financial support.

Table 5-9 Impact, reporting and unmet needs among victims of violent crime

	Patients		Controls		p	Adjusted OR ^a (95%)	p	Adjusted OR from sensitivity analysis ^b (95% CI)	p
	n/N	%	n/N	%					
IMPACT									
Anxiety/depression/panic attacks	27/53	50.9	17/87	19.5	<0.001	5.1 (1.9-13.7)	<0.01	3.4 (1.4-8/6)	<0.01
Confidence loss /social withdrawal	32/53	60.4	33/87	37.9	0.01	2.2 (1.0-5.3)	0.06	1.4 (0.66-3.2)	0.35
Financial loss	13/52	25.0	14/87	16.1	0.2	1.3 (0.43-3.8)	0.65	0.95 (0.33-2.7)	0.92
Physical health problems	19/51	37.3	25/87	28.7	0.3	0.87 (0.36-2.1)	0.76	0.68 (0.28-1.6)	0.39
Injury (for assault victims)	45/56	80.4	35/73	47.9	<0.001	4.4 (1.7-11.3)	<0.01	3.9 (1.7-9.1)	<0.01
REPORTING									
Reported to police	37/64	57.8	43/88	48.9	0.27	1.0 (0.48-2.3)	0.92	0.93 (0.43-2.0)	0.85
Dissatisfied with police response	14/28	50.0	10/42	23.8	0.02	2.7 (0.63-11.8)	0.18	1.9 (0.42-6.7)	0.46
Reported to mental health professional	42/62	67.7	-	-	-	-	-	-	-
HELP WANTED (but not received)									
Any help	28/51	54.9	-	-	-	-	-	-	-
Talking help	12/43	27.9	-	-	-	-	-	-	-
Help with criminal justice system process	11/41	26.8	-	-	-	-	-	-	-
Financial/practical help	14/44	31.8	-	-	-	-	-	-	-

a. Analyses for those with non-missing data, adjusted for age, sex, housing tenure, MDI quintiles and number of crimes experienced

b. Sensitivity analysis, assuming all missing responses were negative; adjusted for same factors as above

5.5.5 Violence against BCS respondents with and without CMI and patients with SMI

This section summarises the analysis comparing national BCS respondents with and without CMI to the SMI patient survey respondents.

Table 5-10 shows the prevalence and relative odds of physical or sexual violence (as reported in the main interview) against (i) BCS respondents without CMI (baseline group), (ii) BCS respondents with CMI and (iii) SMI patients survey respondents-stratified by gender.

After adjusting for age, men and women with both CMI and SMI were at increased odds of victimisation compared to those without mental illness, but the relative odds were higher for those with SMI than CMI. Additional adjustment for ethnicity, marital status and social deprivation (employment, social class, housing tenure and area deprivation) led to a sizeable reduction in the odd ratios for men with CMI (from three-fold to no excess risk) and for men with SMI (from six-fold to four-fold). There was little change in the adjusted odds ratios for women with CMI (four-fold before and after additional adjustment) or women with SMI (eleven-fold before and after additional adjustment); although the adjusted odds for women with CMI were no longer statistically significant at the 5% level.

Overall, after additional adjustment for ethnicity, marital status and social deprivation, men and women with SMI were still at increased risk, whilst men and women with CMI were no longer at increased risk at the 5% significant level.

Among those with both CMI and SMI, women were at higher risk than men, with a more pronounced difference in the fully adjusted models.

Table 5-10 Prevalence and odds ratios of past-year physical or sexual violence against patients and BCS respondents with or without CMI (main interview measures)

	N	n victims	% victim	OR adjusted for age ⁴	p-value	OR adjusted for sociodemographics ⁴	p-value
Men							
No MI ¹	15276	531	3.5	1		1	
CMI ²	561	47	8.4	3.1 (2.3-4.3)	<0.001	1.0 (0.21-4.5)	0.97
SMI ³	203	36	17.7	6.4 (4.4-9.4)	<0.001	3.6 (1.7-7.5)	<0.001
Women							
No MI ¹	17383	437	2.5	1		1	
CMI ²	903	72	8	3.9 (3.0-5.0)	<0.001	3.5 (0.90-13.7)	0.08
SMI ³	158	32	20.2	10.5 (7.0-15.9)	<0.001	10.8 (4.8-24.1)	<0.001

1. BCS respondents with self-reported CMI

2. BCS respondents with self-reported CMI

3. Patient survey participants

4. Adjusted for age, ethnicity, marital status, employment, social class, housing tenure, area deprivation

5.6 Discussion

5.6.1 Main findings

Forty percent of patients compared with 14% of controls were a victim of crime in the preceding year. The primary hypothesis that patients would be at increased odds of personal and household crime compared to general population controls was supported; patients were five times more likely to be victims of assault, and three times more likely to be victims of household acquisitive crime and criminal damage, after adjusting for socio-demographics and area characteristics. Women with SMI were at particularly high risk of violence, both community and domestic. The secondary hypothesis that social deprivation, substance misuse and violence perpetration would account for any excess risk of violence victimisation among patients was supported among men with SMI but not among women with SMI (who had eight-fold adjusted odds for this outcome). Secondary hypotheses on impact and reporting of crime were partially supported: crime led to greater reported psychological adversity and injury by patient than control victims, but surprisingly patients and controls were equally likely to report victimisation to the police.

5.6.2 Findings in the context of past studies

Previously published studies on violence victimisation among people with SMI have had highly heterogeneous settings, populations and measures and have reported prevalence estimates ranging from 4% to 58% [10, 14, 32, 106, 188]. Few studies have compared victimisation among mental health service users with a control group [11, 15, 22, 23, 116]. Silver et al in the US compared discharged psychiatric patients with a neighbourhood control sample, and found a 2-fold increase in violence victimisation after adjusting for socio-demographics and violence perpetration. [22] Teplin et al in the US and Sturup et al in Sweden compared violent crime against psychiatric patients with data from participants in national crime surveys and, after adjusting for a very limited number of confounders, found 12-fold and 6-fold higher risk among patients respectively. [15] [23] A New Zealand birth cohort study found that violent victimisation among a small number of people with schizophreniform disorder (N=38) was three fold higher than among those without any psychiatric

disorder. [116] These studies adjusted for a limited number of confounders and did not assess the impact or reporting of violence. This study found greatly elevated odds of victimisation compared to general population controls for all violence types (physical and sexual; domestic and community), even after adjusting for a broader range of key individual, household and area characteristics than in studies carried out previously. [15, 22, 23, 116] The finding that women with SMI were particularly vulnerable to violence is consistent with evidence from Sweden and the US. [15, 23, 68] In the general population, violence prevention among women is focused on domestic and sexual violence, [58, 167], but this study's finding that women with SMI had increased risks of both domestic and community violence suggests the need for broader interventions in this group.

This study found that people with SMI are more likely to report adverse psychological and social effects once victimised. This would compound the personal, public health and economic costs of victimisation in this group, especially given the relatively large contribution of psychosocial impact to the overall economic cost of crime. [137] These findings suggest that people with SMI should be prioritised in public health policies on violence prevention directed at vulnerable groups. Although SMI is uncommon, affecting around 3% of the population, [171] it is one of the leading causes of global disease burden; and this study and others suggest that violence experiences are associated with worse function and quality of life among this group, and a greater need for public services. [19]

Past studies have shown that substance misuse, social isolation, homelessness and violence perpetration are important risk factors for victimisation among people with SMI; [31], [106], [189] whilst treatment adherence was protective. [190] In this study, substance misuse and violence perpetration accounted for the excess risk of victimisation among men but not among women; suggesting the need for gender-sensitive interventions given the likely differences in risk pathways.

In routine clinical practice, victimisation is under-detected by mental health professionals, and where it is detected, concerns may not be promptly acted upon. [161] Half of the violence victims in this study had unmet support needs. Mental

health professionals need to identify victimisation, mitigate modifiable risk factors and address co-morbidity.

Surprisingly, patients were as likely to report victimisation to the police and to progress through the Criminal Justice System (CJS) as the general population, contradicting previous qualitative evidence which suggested people with mental health problems had limited access to the judicial system. [18] Nonetheless, there was a trend for patients to be less satisfied with the response of the police, with qualitative research conducted by the UK Charity Victim Support suggesting that they are often not believed and discriminated against within the CJS. [6] Clearly criminal justice policies must protect against such discrimination. Half of patients had unmet support needs, including for practical/financial help, psychological support and help with the criminal justice system process.

There are few studies on people with self-reported chronic mental illness in the literature. This study found that, after taking age into account, people with CMI and SMI were at increased risk of victimisation compared to those without mental illness; and that there was a greater relative risk for those with SMI than those with CMI. Additional adjustment for social deprivation accounted for much of the excess risk among men with CMI (who were no longer at increased risk compared to those without mental illness) and men with SMI (who still had around three-fold elevated odds). By contrast, additional adjustment for social deprivation led to little change in the risk among women with CMI or women with SMI (who had four-fold and 11-fold elevated odds respectively- although the former was no longer statistically significant with a $p=0.08$).

5.6.3 Strengths and limitations

Strengths of this study include a large sample size, with a comparison group drawn from the same geographical area. Detailed information was derived on the nature, impact and reporting of crime. Self-reported measures for domestic and sexual violence were used (which have higher disclosure rates than face-to-face interview measures). [48] Random sampling rather than convenience or consecutive sampling was used (whereas the latter was used in many past related studies) [14].

Limitations include the low response rate of 52% for patients, although similar response rates have been obtained in other surveys of victimisation. [11] This low response rate may be due to the sensitive topics addressed in this study, conducted in a difficult-to-reach group. There is potential for observer bias (since interviewers in the patient survey were not blind to main hypothesis) and reporting bias (patients and controls may have different thresholds for disclosing victimisation), but this is mitigated by the highly structured questionnaire, and by past evidence that self-reported victimisation among people with SMI is valid and reliable. [15, 50, 51] There may be a reporting bias for domestic violence due to the different interview settings- controls were interviewed at home but most patients were interviewed in clinic, and disclosure may be easier in a clinical setting (although all home-based interviews were conducted in a private setting without others present, and participants themselves filled out a computer-based questionnaire in confidence). Another limitation is the different socio-demographic profile of patients and controls, but the analyses carefully adjusted for a broad range of individual and household measures. The sensitivity analysis found no evidence for confounding by area of residence. Bias from missing data on impact is possible, but there was no evidence for this from the relevant sensitivity analysis. A small proportion of controls may have SMI, since a self-reported measure was used to exclude mental illness in this group. However, the prevalence of SMI in the general population is less than 3% [171], and the presence of people with SMI in the controls would have led to an underestimate in the relative odds. Findings on prevalence are likely generalise to other Western urban settings with similar background levels of violence, and those on relative odds are likely to generalise to all settings where people with SMI have a similar socio-demographic and clinical profile to the one described here.

5.6.4 Conclusion

In conclusion, victimisation among people with SMI is more prevalent and associated with greater psychosocial morbidity than victimisation among the general population. This research has shown that women with SMI are at particularly high risk of both domestic and community violence. Therefore, violence prevention measures in this population need to address both types of violence, and to ensure

men and women have access to these interventions. Violence prevention for people with SMI is likely to require an integrated response by mental health professionals, third sector organisations and the Criminal Justice System. Implications for practice and policy are discussed in detail in Chapter 8.

This chapter outlined findings on violence by any perpetrator against people with SMI. The next chapter presents the findings on domestic and sexual violence against this group in greater detail.

Chapter 6. Domestic and sexual violence against adults with severe mental illness compared with the general population

6.1 Abstract

Background: Domestic and sexual violence are significant public health problems but little is known about the extent to which men and women with severe mental illness (SMI) are at risk compared with the general population. This study aimed to compare the prevalence and impact of these types of violence against people with and without SMI.

Methods: 303 randomly-recruited psychiatric patients, in contact with community services for 1 year or more, were interviewed using the British Crime Survey domestic/sexual violence questionnaire. Prevalence and correlates of adulthood and past-year domestic and sexual violence in this sample were compared with those from 22,606 general population controls participating in the contemporaneous 2011/12 national crime survey.

Results: Past-year domestic violence was reported by 27% vs. 9% of SMI and control women respectively (odds ratio adjusted for socio-demographics, aOR 2.7, CI 1.7-4.0), and by 13% vs. 5% of SMI and control men respectively (aOR 1.6, CI 1.0-2.8). Past-year sexual violence was reported by 10% vs. 2.0% of SMI and control women respectively (aOR 2.9, CI 1.4-5.8). Family (non-partner) violence comprised a greater proportion of overall domestic violence among SMI than control victims (63% vs. 35%, $p < 0.01$). Adulthood serious sexual assault led to attempted suicide more often among SMI than control female victims (53% vs. 3.4%, $p < 0.001$).

Conclusions: Compared to the general population, people with SMI are at substantially increased risk of domestic and sexual violence, with a relative excess of family violence and adverse health impact following victimisation. Psychiatric services, and public health and criminal justice policies, need to address domestic and sexual violence in this at-risk group. Domestic violence interventions need to address violence by family members as well as that by partners.

6.2 Introduction

In Chapter 5, I examined any past-year crime against people with SMI, including violent crime by any perpetrator, and non-violent crime such as theft or criminal damage. In this chapter, I focus on a subgroup of violent crime in greater detail: domestic violence (perpetrated by partners or family members) and sexual violence (by any perpetrator). These types of violence are often addressed together in international policies, particularly those focusing on violence against women. [58] They tend to be more private and hidden, and may have distinct correlates and impact, so merit separate investigation. [58]

People with SMI experience high rates of domestic and sexual violence, but the prevalence and health burden of these experiences compared with non-psychiatric controls is unknown. [11, 87, 88]. In a recent systematic review of 42 studies, the median prevalence of adulthood domestic violence among female psychiatric patients was 30% , but no studies included control populations and there was little evidence on male victims, emotional abuse, and violence perpetrated by family members (other than partners). [87]

In the general population, domestic and sexual violence are a public health priority due to their significant morbidity and mortality; including injuries, chronic physical illness, poor sexual health, adverse perinatal outcomes, substance misuse, mental illness and suicidal behaviour. [45, 191, 192] There is some evidence that the health burden is even greater amongst those with pre-existing disability, [2] but the health burden among people with SMI is unknown. Interventions are primarily based on evidence obtained from general population and primary care samples [193, 194], but

findings may not generalise to psychiatric populations, where the nature and/or impact of violence may differ.

6.3 Aims and hypotheses

In order to address these key evidence gaps on the epidemiology of domestic and sexual violence against people with SMI, this study compared these outcomes among people with SMI with the general population and tested the following hypotheses:

- (a) Men and women with SMI would have increased odds of being victims of lifetime and past-year domestic and sexual violence compared with those without SMI
- (b) Family (non-partner) violence would comprise a greater proportion of domestic violence among victims with SMI than general population victims
- (c) Violence would lead to greater adverse health effects and less disclosure among victims with SMI than general population victims.

6.4 Methods

This study used data from the patient survey described in detail in Chapter 5, and the ONS crime survey described in detail in Chapter 3. Key methodological aspects are outlined below.

6.4.1 Design

People with SMI under the care of community mental health services were recruited using simple random sampling. They were interviewed with a modified version of the Crime Survey for England and Wales (CSEW) questionnaire, which includes an optional self-completion module on being a victim of domestic or sexual violence. Findings from the patient sample were compared with findings from participants in the contemporaneous Office for National Statistics (ONS) cross-sectional crime survey (CSEW).

6.4.2 Setting and participants

The patient sample was recruited from nineteen community mental health teams (CMHTs) in two National Health Service (NHS) mental health organisations which cover a large diverse catchment area of 1.5 million people. Central IT registers were used to identify all patients with a named keyworker in the included teams, and a random sample was drawn from which participants were recruited (in the period Sep/11-Mar/13). Inclusion criteria for patients were (a) age 18-59 (b) under the care of CMHTs in one of six London boroughs for one year or more (c) living in the community (i.e. not in long-stay rehabilitation wards). Exclusion criteria were poor English language proficiency and lack of capacity to consent. In this study, participants who completed the domestic/sexual violence module were included.

The comparison group was drawn from participants in the 2011-2012 Office for National Statistics crime survey (CSEW). The CSEW recruited a nationally representative sample of people living in private residential households. One adult per household was recruited (drawn at random from the household's adult residents). For this study, the inclusion criteria for the comparison sample were (a) aged 18-59 (b) completed the domestic/sexual violence module.

6.4.3 Interview procedures

The ONS national crime survey was conducted by lay interviewers in participants' homes. (16) It comprised (a) a computer-assisted face-to-face interview with all participants, which measured socio-demographics and experiences of past-year crime and (b) an opt-in computer-assisted self-completion questionnaire, which focused on the more sensitive topics of domestic and sexual violence. The self-completion module is typically completed by 70-80% of eligible respondents. (16)

The patient survey was conducted by one of six interviewers (3 psychologists, 1 psychiatrist and 2 research assistants). As with the ONS survey, all patients were interviewed face-to-face and were then invited to participate in the self-completion module.

6.4.4 Measures

The primary exposure was severe mental illness, namely chronic mental illness requiring on-going care from secondary mental health services. In the study setting, the majority of such patients have affective or non-affective psychosis.

The main outcomes were: (1) being a victim of any domestic violence since the age of 16 and in the past year (2) being a victim of any sexual violence since the age of 16 and in the past year; as reported in the self-completion module. These outcomes were subdivided according to (a) the nature of violence (b) the perpetrator, as detailed in **Table 6-2** and **Table 6-3**. Sexual violence perpetrated by partners or family members was included in the definitions of both domestic violence and sexual violence- in accordance with international definitions. [91]

Two additional outcomes were only asked about among victims of serious sexual assaults (i.e. rape or attempted rape) since the age of 16:

(1) *Impact*, measured by asking victims if they had experienced any of the following as a result of serious sexual assaults:

- Physical illness or injury: bruising / black eye / scratches / bleeding from cuts / internal injuries / broken bones / contracting a disease / becoming pregnant
- Psychosocial problems: 'mental or emotional problems such as difficulty sleeping, nightmares, depression, low self-esteem / stopped trusting people / difficulty in other relationships / stopped going out so much

- Suicide attempts

(2) *Reporting* of serious sexual assaults (to professionals or informal social networks).

Potential socio-demographic confounders, which were identified a priori from the literature, were: age, sex, ethnicity, educational attainment, employment, lone adult in household, child(ren) in household, housing tenure and small area multiple deprivation index. [48, 86, 195] The potential mediating effect of substance misuse (measured as frequency of drunkenness in the past year, and any past illicit drug use) was explored.

Clinical diagnosis was defined as the primary ICD-10 diagnosis recorded in the electronic clinical records.

6.4.5 Statistical analysis

All analyses were performed using Stata 12. Since the study aimed to examine outcomes in both men and women, all analyses were stratified by gender. The odds ratios for domestic and sexual violence among people with SMI compared with general population controls were estimated using multivariate logistic regression. Co-variables were entered in three sequential blocks (model 1: age only; model 2: add other socio-demographics; model 3: add substance misuse) to explore to what extent these domains accounted for any excess violence risk. The latter were interpreted with caution, since adjusting for potential mediators may bias the main-effect estimates. [196, 197]

The health impact and disclosure of serious sexual assault among victims with and without SMI were compared using chi-squared tests.

Past literature had suggested that the gender gap seen in the general population (with women having an excess risk for domestic and sexual violence) was attenuated among people with SMI. [68] To explore this, the crude and adjusted OR for domestic and sexual violence in women compared with men were estimated; first among people with SMI and then among general population controls.

6.5 Results

Note that all reported ‘adjusted odds ratios’ below refer to odds ratios adjusted for socio-demographics (model 2 in **Table 6-2**). Odds ratios additionally adjusted for substance misuse (model 3 in **Table 6-2**) are presented separately.

6.5.1 Sample flow and characteristics

Of 697 eligible patients, 361 were recruited (52% response rate). Of the 345 participants aged 18-59, 303 (88%) took part in the self-completion module on domestic / sexual violence. Self-completion module non-respondents did not differ from respondents in terms of age, sex or educational attainment (data not shown). 46,031 people participated in the 2011/12 ONS CSEW survey (72% response rate). Of the 28,324 participants aged 18-59, 22,606 (80%) took part in the self-completion module on domestic / sexual violence; non-respondents were more likely to be older and unemployed.

Table 6-1 shows sample characteristics. People with SMI had greater levels of social deprivation than the comparison group. Sixty percent (n = 181) had a diagnosis of schizophrenia and 53% (n = 162) had a history of involuntary admission to hospital.

6.5.2 Domestic violence: prevalence and relative odds

Prevalence and relative odds of domestic violence are shown in **Figure 6-1** and **Table 6-2**. Comparing SMI patients with controls, adulthood domestic violence (DV) was reported by 69% vs. 33% of women (OR adjusted for socio-demographics (aOR) 3.9, CI 2.6-5.8) and 49% vs. 17% of men (aOR 3.5, CI 2.5-5.1) respectively.

The relative adjusted odds for each of the different forms of lifetime DV (emotional/physical/sexual; and partner/family) were elevated around 3-4 fold among both men and women with SMI at the 5% significance level. Absolute number for sexual domestic violence in men was too low for stable estimates. Past year domestic violence was reported by 27% vs. 9% of women (aOR 2.7, CI 1.7-4.0) and 13% vs. 5% of men (aOR 1.6, CI 1.0-2.8) with and without SMI respectively, with elevated odds for both partner and family violence among women with SMI (further detailed analyses are reported in **Table 6-2**).

Among victims of domestic violence, a greater proportion of victims with SMI than control victims experienced family violence (61% vs. 32% among women and 65% vs 41% among men; $p < 0.001$). (**Table 6-4**)

Table 6-1 Sample characteristics

Socio-demographics	Patients (N=303)	(Total Controls (N=22,606)	(Total Controls (N=22,606)	p-value for patients vs. controls
	Mean (s.d.)	Mean (s.d.)		
Age	40.8 (0.58)	39.4 (11.3)		0.04
	N (%)	N (%)		
Sex				<0.001
Male	170 (56.1)	10318 (45.6)		
Female	133 (43.9)	12288 (54.4)		
Ethnicity				<0.001
White	124 (40.9)	20499 (90.7)		
Black/Black British	72 (23.8)	1504 (6.7)		
Asian/Chinese/Other	106 (35.0)	592 (2.6)		
Marital status				<0.001
Single	224 (73.9)	9029 (39.9)		
Married	22 (7.3)	10098 (44.7)		
Divorced/widowed	52 (17.2)	3474 (15.4)		
Never had partner	29 (9.6)	303 (1.3)		<0.001
Living alone	208 (68.6)	5947 (26.3)		<0.001
Children in household	36 (11.9)	9238 (40.9)		<0.001
Employment status				<0.001
Employed	32 (10.6)	17909 (79.2)		
Student/economically inactive	29 (9.6)	2589 (11.5)		
Long-term sick/unemployed	242 (79.9)	2085 (9.2)		
Tenancy				<0.001
Owner	18 (5.9)	13933 (61.6)		
Rents private flat	88 (29.0)	5453 (24.1)		
Rents council flat (state-funded)	196 (64.7)	3179 (14.1)		
Drunk >=1once/month	49 (16.2)	2275 (10.1)		0.05
Illicit drug use past year	102 (33.7)	1684 (7.4)		<0.001
Clinical characteristics	N (%)			
Diagnosis				
Schizophrenia & related disorders	181 (59.7)			
Bipolar affective disorder	35 (11.6)			
Recurrent depressive disorder	30 (9.9)			
Personality disorder	23 (7.6)			
Other	34 (11.2)			
History of involuntary admission	162 (53.5)			
	Mean (s.d.)			
Number of hospital admissions	3 (3.5)			
Illness duration	13 (8.9)			

Figure 6-1 Prevalence and adjusted odds of domestic violence (DV) and sexual assault (SA) victimisation among patients compared with controls

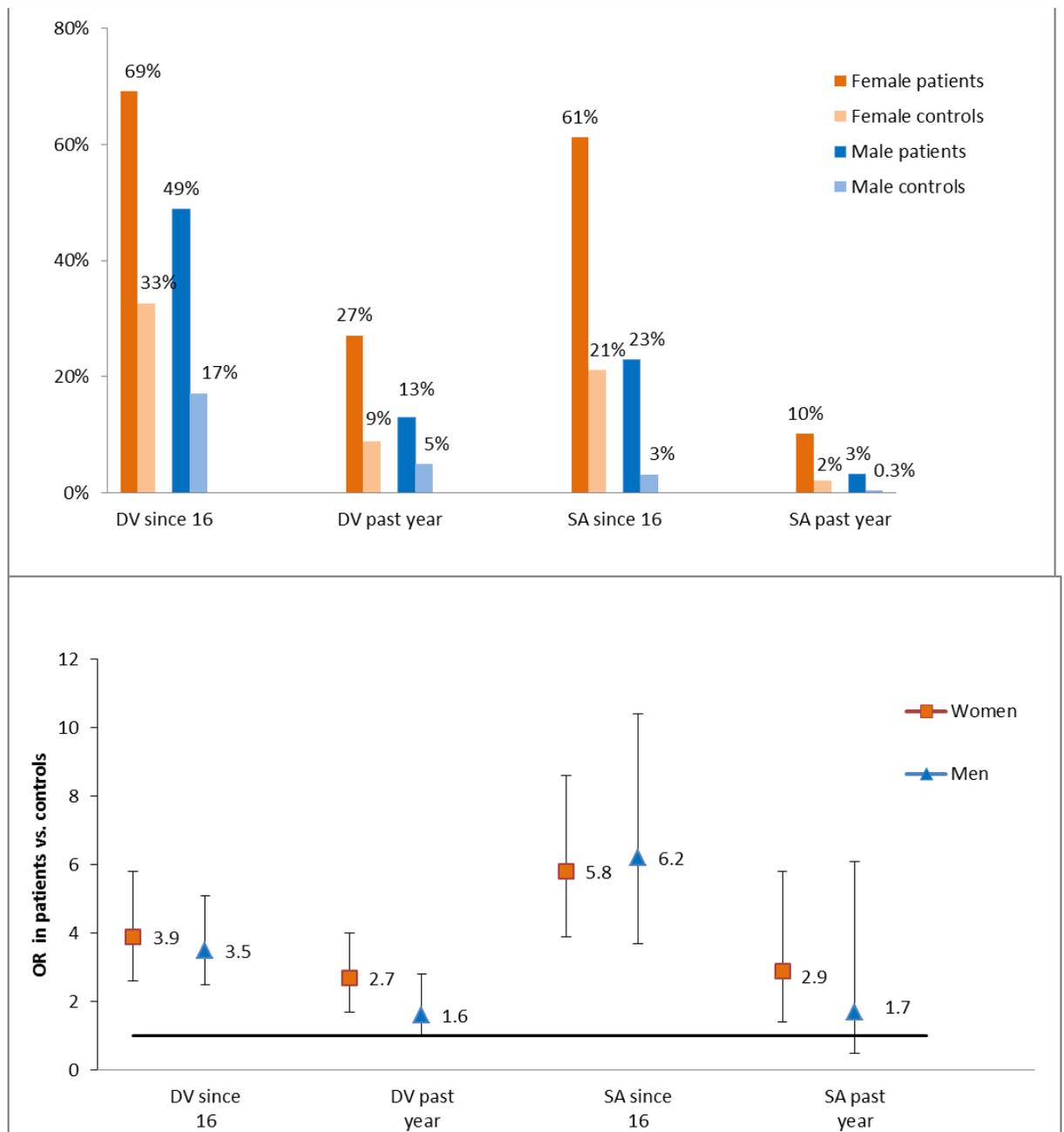


Table 6-2 Prevalence and odds of adulthood and past-year domestic violence (DV) among patients and controls, by gender

	Prevalence				Relative odds								
	Patients		Controls		Model 1 ^b			Model 2 ^c			Model 3 ^d		
	Total N ^a	n victims (%)	Total N ^a	n victims (%)	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Women: Any DV since 16	133	92 (69.2)	12288	4007 (32.6)	4.6	3.2-6.7	<0.001	3.9	2.6-5.8	<0.001	3.4	2.2-5.3	<0.001
Emotional	133	84 (63.2)	12288	3293 (26.8)	4.6	3.3-6.6	<0.001	3.9	2.7-5.8	<0.001	3.5	2.3-5.4	<0.001
Physical	133	79 (59.4)	12288	2841 (23.1)	4.8	3.4-6.8	<0.001	4.1	2.8-6	<0.001	3.2	2.1-4.9	<0.001
Sexual	133	37 (27.8)	12288	887 (7.2)	4.9	3.3-7.3	<0.001	3.3	2.1-5.3	<0.001	2.7	1.6-4.4	<0.001
Partner	124	77 (62.1)	12164	3613 (29.7)	2.8	2.1-3.7	<0.001	3.2	2.1-4.7	<0.001	2.6	1.7-4.0	<0.001
Family	133	56 (42.1)	12288	1269 (10.3)	6.4	4.5-9.1	<0.001	3.4	2.3-5.1	<0.001	3.2	2.1-4.8	<0.001
Women: Any DV in past year	133	36 (27.1)	12288	1085 (8.8)	3.8	2.6-5.5	<0.001	2.7	1.7-4.0	<0.001	2.4	1.5-3.9	<0.001
Partner	124	21 (16.9)	12164	890 (7.3)	2.6	1.6-4.2	<0.001	1.8	1.1-3.1	<0.01	1.7	0.95-2.9	0.08
Family	133	21 (15.8)	12288	336 (2.7)	7.1	4.4-11.6	<0.001	3.4	1.9-6	<0.001	3.1	1.7-5.9	<0.001
Men: Any DV since 16	170	83 (48.8)	10318	1763 (17.1)	4.5	3.3-6.1	<0.001	3.5	2.5-5.1	<0.001	3.3	2.3-4.9	<0.001
Emotional	170	73 (42.9)	10318	1295 (12.6)	5.1	3.7-7.0	<0.001	3.2	2.2-4.6	<0.001	3	2.1-4.5	<0.001
Physical	170	54 (31.8)	10318	1091 (10.6)	3.8	2.7-5.3	<0.001	3.5	2.4-5.3	<0.001	3.3	2.1-5	<0.001
Sexual ^e	170	7 (4.1)	10318	61 (0.6)	-	-	-	-	-	-	-	-	-
Partner	149	57 (38.3)	10138	1426 (14.1)	3.7	2.6-5.1	<0.001	2.8	1.9-4.2	<0.001	2.7	1.8-4.1	<0.001
Family	170	54 (31.8)	10318	726 (7)	6.5	4.6-9.0	<0.001	3.6	2.4-5.4	<0.001	3.3	2.2-5.1	<0.001
Men: Any DV in past year	170	22 (12.9)	10318	507 (4.9)	2.9	1.8-4.6	<0.001	1.6	0.97-2.8	0.07	1.4	0.83-2.5	0.19
Partner	149	14 (9.4)	10138	390 (3.8)	2.6	1.5-4.5	<0.01	1.5	0.82-2.9	0.18	1.3	0.65-2.5	0.48
Family	170	11 (6.5)	10318	175 (1.7)	4.2	2.2-7.9	<0.001	1.5	0.71-3	0.29	1.3	0.6-2.8	0.50

- a. Total N for partner violence excluded participants who had never had a partner
- b. Model 1: Adjusted for age
- c. Model 2: Adjusted for age, ethnicity, marital status, living alone, having children, employment, housing tenure, area deprivation
- d. Model 3: Adjusted for factors in model 2, and additionally frequency of drunkenness in past year and any past-year illicit drug use
- e. Absolute numbers in patients were too low to allow for stable estimates

Table 6-3 Prevalence and odds of adulthood and past-year sexual assaults (SA) among patients and controls, by gender

	Prevalence				Relative odds								
	Patients		Controls		OR	Model 1 ^b		Model 2 ^c			Model 3 ^d		
	Total N	N victims (%)	Total N	N victims (%)		95% CI	p	OR	95% CI	p	OR	95% CI	p
Women: any SA since 16	129	79 (61.2)	12289	2587 (21.1)	5.9	4.1-8.5	<0.001	5.8	3.9-8.6	<0.001	4.4	2.9-6.8	<0.001
Indecent exposure	129	45 (34.9)	12289	1316 (10.7)	5.2	3.6-7.6	<0.001	5.5	3.5-8.4	<0.001	4.2	2.6-6.7	<0.001
Unwanted sexual touching	129	56 (43.4)	12289	1567 (12.8)	5.6	4.1-8.6	<0.001	4.9	3.3-7.4	<0.001	3.6	2.3-5.6	<0.001
Serious sexual assaults	129	52 (40.3)	12289	871 (7.1)	9.3	6.4-13.3	<0.001	6.2	4.1-9.6	<0.001	4.8	3.0-7.7	<0.001
Domestic SA	129	37 (28.7)	6117	396 (6.5)	5.8	3.9-8.6	<0.001	4.6	2.8-7.7	<0.001	3.7	2.1-6.5	<0.001
Non-domestic SA	129	61 (47.3)	6117	907 (14.8)	5.2	3.6-7.4	<0.001	6.6	4.3-10.2	<0.001	5.2	3.2-8.3	<0.001
Women: any SA in past year	129	13 (10.1)	12288	245 (2)	6	3.3-10.9	<0.001	2.9	1.4-5.8	<0.01	2.1	0.98-4.7	0.05
Men: any SA since 16	157	36 (22.9)	10317	321 (3.1)	9.3	6.3-13.7	<0.001	6.2	3.7-10.4	<0.001	5.5	3.2-9.5	<0.001
Indecent exposure	157	12 (7.6)	10317	129 (1.3)	6.7	3.6-12.4	<0.001	4.8	2.1-10.7	<0.001	4.5	1.9-10.5	<0.001
Unwanted sexual touching	157	26 (16.6)	10317	193 (1.9)	10.9	6.9-17.0	<0.001	7.1	3.8-13.0	<0.001	6.2	3.2-11.8	<0.001
Serious sexual assaults	157	19 (12.1)	10317	56 (0.5)	24.4	14.1-42.4	<0.001	7.8	3.6-16.9	<0.001	6.3	2.8-14.2	<0.001
Domestic SA ^e	157	7 (4.5)	5195	18 (0.35)	-	-	-	-	-	-	-	-	-
Non-domestic SA	157	32 (20.4)	5195	107 (2.1)	12.6	8.1-19.4	<0.001	12.4	5.9-25.7	<0.001	10.9	5.0-23.7	<0.001
Men: any SA in past year^e	157	5 (3.2)	10317	33 (0.32)	-	-	-	-	-	-	-	-	-

- Perpetrator of sexual assaults was asked about in all patient participants but only a random half of control participants; reflected in total N for domestic and non-domestic SA
- Model 1: Adjusted for age
- Model 2: Adjusted for age, ethnicity, marital status, living alone, having children, employment, housing tenure, area deprivation
- Model 3: Adjusted for factors in model 2, and additionally frequency of drunkenness in past year and any past-year illicit drug use
- Absolute numbers in patients were too low to allow for stable estimates

Table 6-4 Perpetrators of adulthood domestic and sexual violence among patient and control victims

	Patients			Controls			P for difference between patients and controls
	Total N who reported any DV	Total N who reported DV by this perpetrator	%	Total N who reported any DV	Total N who reported DV by this perpetrator	%	
DOMESTIC VIOLENCE							
Perpetrator of DV against women							
Partner	92	77	83.7	4007	3613	90.2	0.04
Family member	92	56	60.9	4007	1269	31.7	<0.001
Partner & family member	92	41	44.6	4007	875	21.8	<0.001
Perpetrator of DV against men							
Partner	83	57	68.7	1763	1426	80.9	<0.01
Family member	83	54	65.1	1763	726	41.2	<0.001
Partner & family member	83	28	33.7	1763	389	22.1	0.01
SEXUAL ASSAULTS							
Perpetrator of sexual assault against women							
Partner	79	32	40.5	1173	348	29.7	0.04
Family member	79	12	15.2	1173	73	6.2	<0.01
Acquaintance	79	34	43.0	1173	339	28.9	<0.01
Stranger	79	48	60.8	1173	656	55.9	0.4
Perpetrator of sexual assault against men							
Partner or family member ²	36	7	19.4	123	18	14.6	0.49
Acquaintance	36	20	55.6	123	54	43.9	0.22
Stranger	36	16	44.4	123	57	46.3	0.84

1. Perpetrator of sexual assaults was asked about in all patient participants but only a random half of control participants

2. Absolute numbers of partner and family member perpetrators were too low to report separately

6.5.3 Sexual assaults: prevalence and relative odds

Prevalence and relative odds of sexual violence are shown in

Figure 6-1 and **Table 6-3**. Comparing SMI patients with controls, adulthood sexual assaults were reported by 61% vs 21% of women (aOR 5.8, CI 3.9-8.6) and 23% vs 3% of men (aOR 6.2, CI 3.7-10.4) respectively. Adulthood serious sexual assaults were reported by 40% vs. 7% of women (aOR 6.2, CI 4.1-9.6) and 12% vs. 0.5% of men (aOR 7.8, CI 3.6-16.9) respectively. Past-year sexual assaults were reported by 10% vs. 2% of women (aOR 2.9, CI 1.4-5.8). Absolute numbers among men were too low to allow for stable estimates.

The proportion of sexual assaults by perpetrator is shown in **Table 6-4**. Female victims with SMI were more likely to be assaulted by someone they know than control victims. There was no difference in perpetrators among male victims.

6.5.4 The effect of adjusting for substance misuse

The effect of adjusting for substance misuse is shown in **Table 6-2** and **Table 6-3**; where Model 2 and Model 3 show the adjusted odds before and after the inclusion of substance misuse variable in the multivariate logistic regression models. The adjustment for substance misuse in addition to socio-demographics resulted in a reduction in the odds ratios by 4%-22% for domestic violence and 6-26% for sexual assaults. Odds ratios at the 5% significance level remained elevated for lifetime and past-year violence, apart from past-year domestic violence in men (aOR 1.4, CI 0.82-2.5).

6.5.5 Serious sexual assaults (SSA): impact and reporting

The impact and reporting of serious sexual assaults were only estimated for female victims of SSA as the absolute number of male victims was too low for stable estimates. Results are shown in **Table 6-5**. Compared to female victims without SMI, victims with SMI were more

likely to report adverse psychological / social effects (92% vs. 64%, $p < 0.001$) and attempted suicide (53% vs. 3%, $p < 0.001$) as a result of experiencing serious sexual assaults, but equally likely to report physical illness or injury (49% vs. 40%, $p = 0.35$) as a result of experiencing serious sexual assaults. Women with SMI who were victims were more likely than control victims to disclose their experiences to health professionals (43 vs. 15%, $p < 0.001$) and to the police (37% vs. 16%, $p < 0.001$), but a similar proportion disclosed to informal networks in the two groups.

6.5.6 Gender and risk of domestic and sexual violence

The relative odds of victimisation in women compared with men are shown in **Table 6-6**. Among both patients and controls, women had around 6-9 fold elevated odds of being victims of sexual violence, 2-3 fold elevated odds of partner violence, and 30-40% elevated odds of family violence (the latter did not meet statistical significance at 5% level among patients)

Table 6-5 Adverse effects and disclosure among patient and control female victims of serious sexual assaults

	n (%) patient victims reporting consequence / disclosure (N=49)	n (%) control victims reporting consequence / disclosure (N=827)	p-value for patients vs. controls
Consequences of serious sexual assaults			
Any adverse impact	47 (95.9)	648 (78.4)	<0.01
Physical injuries / disease	24 (49)	334 (40.4)	0.35
Psychological/social	45 (91.8)	531 (64.2)	<0.001
Suicide attempt	26 (53.1)	28 (3.4)	<0.001
Disclosure of serious sexual assaults			
To anyone	37 (75.5)	481 (58.2)	0.02
Friends / relatives / neighbours	25 (51)	387 (46.8)	0.86
Health professional (e.g. doctor, nurse, mental health social worker etc.)	21 (42.9)	127 (15.4)	<0.001
Police	18 (36.7)	129 (15.6)	<0.001
Other	11 (22.4)	164 (19.8)	0.76

Table 6-6 Relative odds for being the victim of partner, family and sexual violence since age 16 in women compared with men

	Prevalence				Odds ratios in women vs. men					
	Women		Men		Odds ratio (model 1) ¹	95% CI	p	Odds ratio (model 2) ²	95% CI	p
	N	n	N	n						
Patients										
Partner violence	133	77	169	57	2.7	1.7-4.4	<0.001	3.0	1.7-5.4	<0.001
Family violence	133	56	169	54	1.5	0.93-2.4	0.09	1.3	0.77-2.3	0.09
Sexual violence	133	79	169	36	5.6	3.3-9.5	<0.001	6.7	3.6-12.5	<0.001
Controls										
Partner violence	12,288	3611	10,318	1426	2.6	2.4-2.8	<0.001	2.4	2.2-2.6	<0.001
Family violence	12,288	1268	10,318	726	1.5	1.4-1.7	<0.001	1.5	1.3-1.7	<0.001
Sexual violence	12,288	2587	10,318	321	8.4	7.4-9.4	<0.001	8.6	7.6-9.8	<0.001

1. Model 1: Adjusted for age

2. Model 2: Adjusted for age, ethnicity, marital status, living alone, having children, employment, housing tenure, area deprivation

6.6 Discussion

6.6.1 Main findings

This study compared the prevalence of domestic and sexual violence against people with severe mental illness (SMI) under the care of mental health services with a general population control group, and found a high prevalence and markedly excess odds of these experiences among people with SMI. Among DV victims, family violence was experienced by a greater proportion of SMI than control victims. Women with SMI were more likely to attempt suicide following serious sexual assaults than female victims without SMI, and more likely to disclose sexual violence to health professionals and the police.

6.6.2 Findings in the context of past studies

The prevalence estimates for domestic and sexual violence among women with SMI are in line with previous studies. [11, 15, 172] A recent systematic review found no past studies that compared domestic violence in psychiatric patients with a general population control sample. [87] This study found that people with diagnosed serious mental illnesses in contact with psychiatric services had 2-4-fold elevated odds of all subtypes of domestic violence (emotional, physical and sexual) compared with the general population. These findings suggest that clinicians should routinely enquire not just about physical domestic violence, but also emotional and sexual abuse - especially given the increasing evidence that emotional abuse may have a greater health impact than physical violence. [158, 159]

The relationship between experiencing violence and SMI is likely to be bi-directional, [198] [90] [199], but this study reports increased risk of recent violence occurring after illness onset. It is of note that violence risk at any time in adulthood

was high. Victimization experiences may be a trigger or a causal factor for severe mental illness. There is increasing evidence from longitudinal studies that childhood abuse is associated with later development of psychotic disorders or symptoms, [84],[200]- including evidence from genetically sensitive studies. [201] Early trauma is itself a risk factor for later victimisation, [122] [83] and may be an important contributor to elevated risk of recent victimisation in the SMI population.

In this study, substance misuse appeared to account for a proportion of the excess violence risk, and may be a suitable target for intervention, although the direction of causality is unclear, since being a victim can lead to increased substance misuse as a coping mechanism. [156]

In this study, family violence comprised a greater proportion of overall domestic and sexual violence experiences among victims with SMI than general population victims. [16] People with SMI are known to have elevated risks of childhood maltreatment; abuse by family members, including parents, may extend into adulthood. [84] Most domestic violence prevention policies among working-age adults have focused on partner violence, but this study's findings suggest that interventions among people with SMI also need to target family violence.

In this study, a 6-8 fold elevation in the odds of sexual assault among both men and women with SMI was found. This is lower than the seventeen-fold risk reported in a recent US study, [15] but this analysis adjusted for a broader range of confounders, and included estimates for lifetime rather than just past-year sexual assaults (where prevalence is low and estimates are imprecise). Half of the women with SMI who experienced SSA reported attempting suicide as a result of these experiences. In clinical practice, suicide attempts among people with SMI may be seen as a direct

result of acute psychotic relapse [202], and this may lead to under-detection of trauma and related PTSD as a trigger for suicidal behaviour. The findings from this study highlight the importance of enquiring about trauma experiences among patients who attempt suicide.

Among victims of sexual assault, a higher proportion of SMI than control victims reported their experiences to the police, but there is evidence that they are often disbelieved and discriminated against within the criminal justice system. [6, 49] Only 43% of patients had disclosed their experiences to a healthcare professional, despite the fact that this patient population had received intensive support from psychiatric services for at least a year in order to be included in the study. Health professionals often fail to detect trauma histories in people with SMI, or where they do detect it, they often fail to address it in patients' management plans. [161, 164] This may lead to treatment resistance for the primary mental disorder. [173] There is therefore a need for interventions that improve detection of violence by healthcare professionals, and the provision of subsequent support. This study's findings suggest the need to include screening and support for sexual assaults and family violence in such interventions. Effective interventions would require joint working with voluntary sector organisation and the criminal justice system. [91] [91] [16]

Strengths and limitations

Strengths of this study include: the large randomly-selected sample; reliable, validated measures of violence experiences and hypothesis-based analyses. Covariates were adjusted for in a sequential manner, allowing for examination of the contribution of the hypothesised confounders (e.g. age and socio-demographics) and the hypothesised mediators (substance misuse) to the relationship between SMI and

victimisation. Potential limitations include the cross-sectional nature of the study, which precludes firm conclusions about direction of causality. However, since all patients had been under the care of mental health services for more than one year, by definition past-year violence would have occurred after the onset of SMI (notwithstanding measurement error). The response rate was somewhat low at 52%, but this study researched a sensitive topic in a hard to reach population, used a rigorous random sampling procedure rather than a convenience sample (unlike many previous related studies), [11, 87] and non-responders had the same demographic profile as participants. The crime survey definition of domestic violence does not have sufficient detail on context, severity and frequency to allow a distinction between recurrent, controlling severe abuse and incidents of violence reflecting relationship couple tension. [151] Reporting bias is possible, since patients and controls may have different thresholds for disclosing violence, although past studies suggest that people with SMI provide reliable accounts of these experiences. [50] Residual confounding is possible. This general population control sample may have included a small proportion of people with SMI (<3%), [203] although the effect of this would have been to have biased the odds ratios closer to the null. A London-based patient sample was compared with a national control sample (to ensure adequate power), but violence prevalence did not differ by region of residence in the control group. [195]

6.6.3 Conclusion

Men and women with SMI are two to eight times more likely to experience sexual and domestic violence than the general population, with a high relative burden of family violence. Women with SMI are more likely than women in the general population to suffer psychological ill health and attempt suicide following sexual

assaults, but most do not disclose violence to healthcare professionals. Future research should test the effectiveness of interventions to improve detection and support for domestic and sexual violence by mental healthcare professionals.

The last two chapters considered violence against people with SMI compared with the general population. The next chapter focuses exclusively on the patient population. It details the findings on the risk factors and context of violent victimisation among people with SMI, using quantitative and qualitative data.

Chapter 7. Community and domestic violence against people with SMI: context and risk factors

7.1 Abstract

Background: Past studies have investigated the risk factors for being a victim of violence among people with SMI, but none have explored whether community violence and domestic have distinct contexts and risk factors.

Aims: To explore the context and risk factors for domestic and community violence among men and women with SMI, using quantitative and qualitative methods.

Methods: A randomly-recruited sample of 361 people with SMI under the care of mental health services were interviewed using a modified version of the national crime survey questionnaire; which included quantitative and qualitative measures. In the quantitative analysis, socio-demographic, behavioural and clinical correlates of past-year community and domestic violence were explored (using chi-squared tests or t-tests as appropriate for binary association, and logistic regression for multivariate associations). In the qualitative analysis, open-ended responses to questions on the context and causes of violence were analysed using framework analysis.

Results-quantitative analysis: Past-year community violence was reported by 15.5% (n=56), past year domestic violence by 8.3% (n=30) and both types of violence by 1.7% (n=6) of participants. In binary analyses, violence perpetration and drug misuse were associated with both types of violence. Other risk factors were uniquely associated with either community violence (poor service engagement, history of MHA admission, recent prolonged admission), or domestic violence (female gender, childhood abuse, young illness onset, non-schizophrenia diagnosis, personality disorder co-morbidity, poor social function, recent homelessness). In multivariate analyses, drug misuse was independently associated with both violence types, and childhood abuse was independently associated with domestic violence.

Results-qualitative analysis: The interpersonal context of 13 domestic violence and 56 community violence incidents were analysed. Three key themes emerged across violence types: power imbalance (in relationships with partners, acquaintances and mental health professionals), targeted violence (targeted at disability, race or gender)

and mutual conflict (the latter mainly in the context of acute illness or substance misuse).

Conclusion: Quantitative analyses identified distinct victim-related risk factors for community violence (mainly dynamic and related to recent illness severity) and domestic violence (mainly related to early experiences or the nature of the illness). This suggests the need for distinct interventions for these violence types. Qualitative analyses highlighted the importance of factors related to perpetrators and the broader social context, which should be the target of future research and interventions.

7.2 Overview

The chapter presents two sets of analyses of the patient survey data. The first is a quantitative analysis of the context (perpetrators, locations) and risk factors for community and domestic violence among men and women with SMI. There is very limited research on risk factors for these two types of violence within the same study sample, and this analysis allowed a novel exploration of common and unique risk factors for these violence types. The second is a qualitative analysis of victims' accounts of violent incidents and in particular their perception of why the incidents occurred. This provides a complimentary analysis to the quantitative one, and an opportunity to understand how and why certain risk factors operate in this population.

7.3 Quantitative study: Introduction

Most studies on violence against people with SMI are opportunistic, with no or limited details on the nature and context of violence experiences. [11, 14] There is some evidence on risk factors for victimisation in this population. The systematic review reported in Chapter 2 suggested that victimisation was strongly associated with homelessness, substance misuse and violence perpetration; and moderately associated with illness severity. There was no association between victimisation and demographic factors, diagnosis or socioeconomic status. However, most studies investigated risk factors for violence by any perpetrator, with no distinction made between community and domestic violence. [14] These violence types may have distinct risk factors that require different interventions. In the general population, some risk factors are associated with both violence types (e.g. social deprivation, substance misuse), whilst others are uniquely associated with either domestic violence (e.g. female gender) or community violence (e.g. male sex). [16, 86] The risk profile for community and domestic violence among people with SMI is unknown. A better understanding of this is needed to inform screening and intervention programmes.

This study aimed to describe the context (perpetrators, locations) and risk factors for community and domestic violence among men and women with SMI. It was hypothesised that substance misuse would be associated with both domestic and

community violence. Other associations with demographic, social and clinical factors were exploratory.

7.4 Quantitative study: Methods

Data from the patient victimisation survey described in Chapter 5 were analysed, with a focus on the following:

- The prevalence of past-year domestic and community violence by sex
- The perpetrators and locations of domestic and community violence, by sex
- The risk factors for community and domestic violence

Risk factors were grouped in to the following domains:

- Demographic
- Socio-economic
- Childhood adversity
- Clinical
- Substance misuse
- Violence perpetration

Binary associations were assessed between each risk factor and victimization, with separate analyses carried out for community violence and domestic violence. Chi-squared tests were used for categorical variables and t-tests for continuous variables. Those variables which were associated with victimisation at the 5% significance level were included in a multivariate logistic regression model to identify factors independently associated with victimisation.

Additional analyses investigated whether the association between risk factors and victimisation differed by gender. This was done by (a) stratifying the risk factor-victimisation binary analyses by sex, and inspecting and comparing the crude odds ratios and their confidence intervals (b) testing for a statistical interaction between each risk factor and sex in their association with victimisation.

7.5 Quantitative study: Results

7.5.1 Data sources

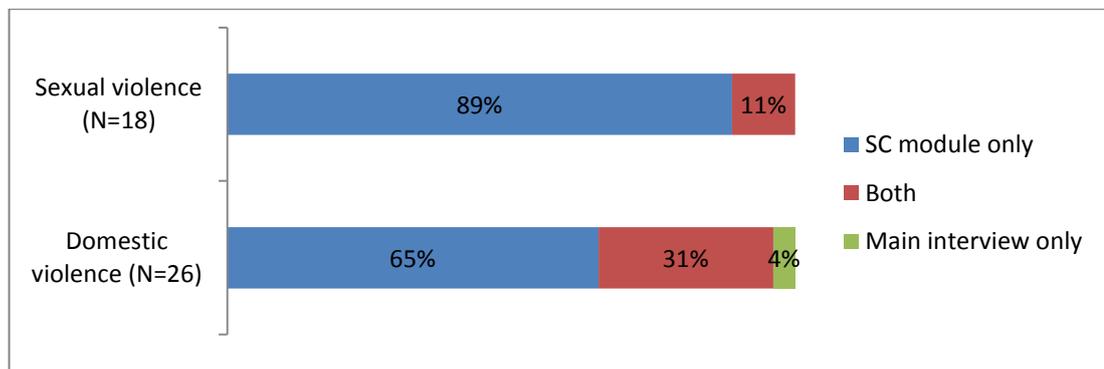
The proportion of patients completing the different measures of violence victimization was as follows:

- Main interview measures 361/361 (100%)
- Self-completion DV physical violence measures 315/361 (87%)
- Self-completion sexual violence measures 300/361 (83%)

There was no difference between those with or without self-completion measures by socio-demographics (age, sex, ethnicity, educational level, housing tenancy), diagnosis or main-interview violence prevalence.

Physical DV and sexual violence were asked about in both the main interview and the self-completion module. The proportion reporting these experiences among those who completed both measures is shown in Figure 7-1. Most experiences were only reported in the self-completion module. Of those who reported sexual violence in the self-completion questionnaire, only 11% also reported this in the main interview. Conversely, all but one of the patients who reported violence in the main interview also reported this in the self-completion questionnaire. The prevalence findings are presented for the subgroup of patients with self-completion data, to enable comparisons of prevalence of different types of violence.

Figure 7-1 Reporting of victimization in main interview & self-completion (SC) module among patients who completed both measures



7.5.2 Prevalence and nature of violence

27% of women and 23% of men experienced any violence in the past year ($p=0.37$).

The prevalence of past-year community and domestic violence is shown in Table 7-1 and Figure 7-2. Women were as likely as men to experience community violence (17%, $p=0.97$), but they were more likely to experience domestic violence (12% vs. 6%; $p=0.06$). The prevalence of past-year physical and sexual violence is shown in Table 7-2 and Figure 7-2. Women were as likely as men to experience physical violence (22%, $p=0.86$), but they were more likely to experience sexual violence (10% vs. 3%, $p=0.01$).

In terms of the type of domestic violence experienced, all but one of the DV victims reported physical violence. Nineteen percent of the female DV victims but none of the male DV victims reported sexual violence. Among victims of community violence, 56% of female victims and 90% of male victims reported physical violence; whilst 52% of female victims and 17% of male victims reported sexual violence (see Table 7-1).

As can be seen in Figure 7-2, a small proportion of victims (2-5%) reported multiple types of violence.

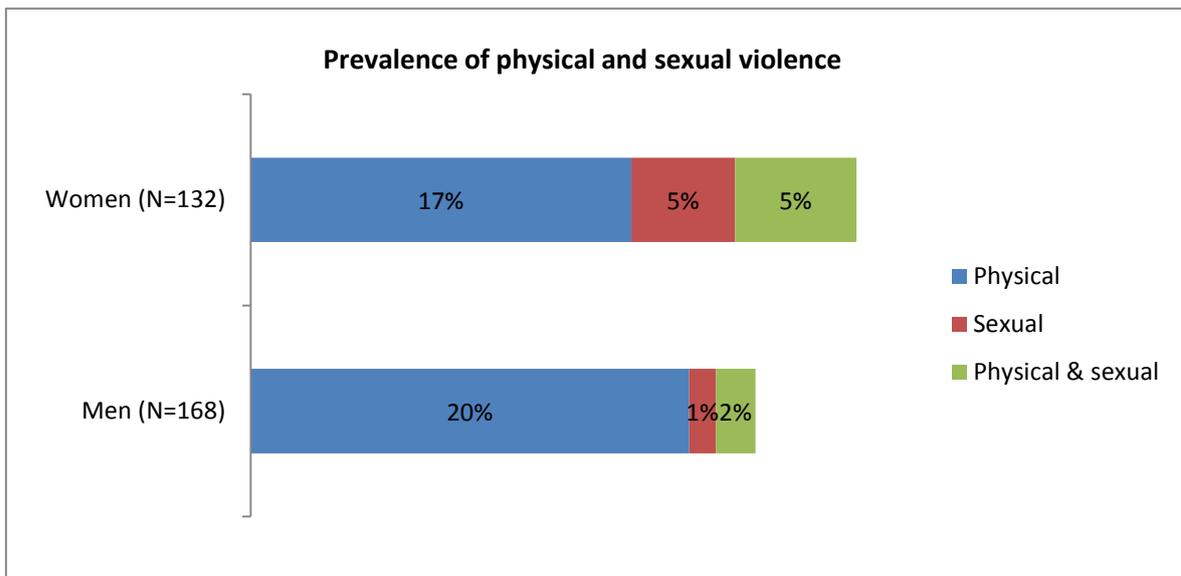
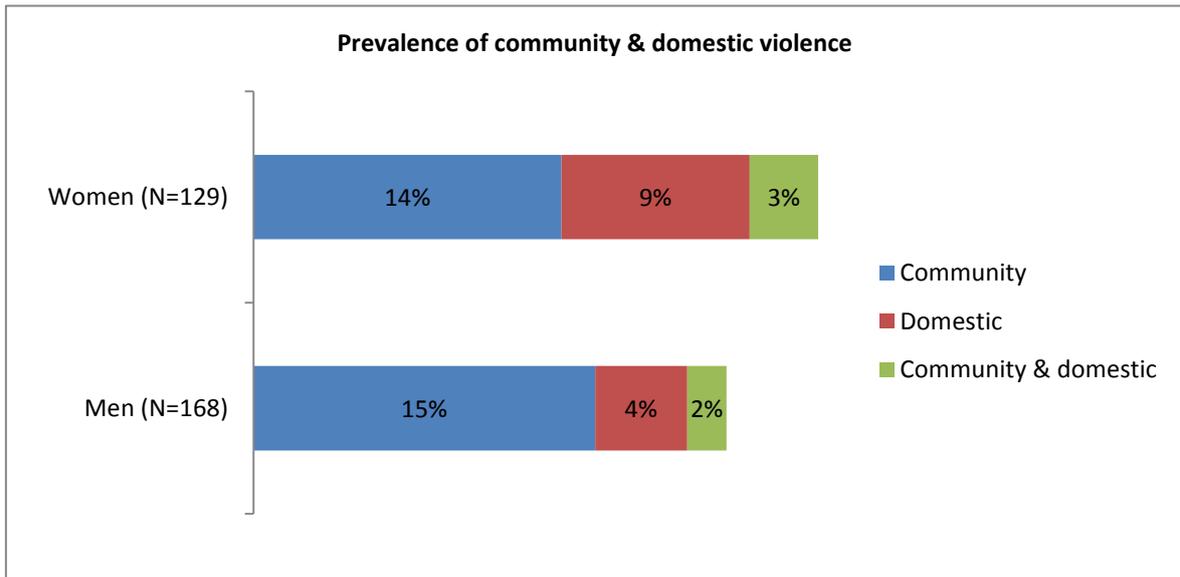
Table 7-1 Prevalence of past-year community and domestic violence among patients with self-completion data

Violence type	% (n/N)			P for difference by gender
	All patients	Men	Women	
COMMUNITY VIOLENCE				
Any	17.3 (52/300)	17.3 (29/168)	17.4 (23/132)	0.97
Physical	13.0 (39/300)	15.5 (26/168)	9.8 (13/132)	0.15
Sexual	5.7 (17/300)	3.0 (5/168)	9.1 (12/132)	0.02
DOMESTIC VIOLENCE				
Any	8.6 (27/315)	6.1 (11/181)	11.9 (16/134)	0.06
Physical	8.3 (26/315)	6.1 (11/181)	11.2 (15/134)	0.1
Sexual	1.0 (3/315)	0.0 (0/181)	2.2 (3/134)	0.04
Any violence	24.6 (73/297)	22.6 (38/168)	27.1 (35/129)	0.37

Table 7-2 Prevalence of past-year physical and sexual violence among patients with self-completion data

Violence type	% (n/N)			P for difference by gender
	All patients	Men	Women	
PHYSICAL VIOLENCE				
Any	21.9 (69/315)	21.5 (39/181)	22.4 (30/134)	0.86
Community	12.7 (40/315)	15.5 (28/181)	9.0 (12/134)	0.09
Domestic	8.3 (26/315)	6.1 (11/181)	11.2 (15/134)	0.10
SEXUAL VIOLENCE				
Any	6.0 (18/300)	3.0 (5/168)	9.8 (13/132)	0.01
Community	5.7 (17/300)	3.0 (5/168)	9.1 (12/132)	0.02
Domestic	1.0 (3/300)	0.0 (0/168)	2.3 (3/132)	0.05

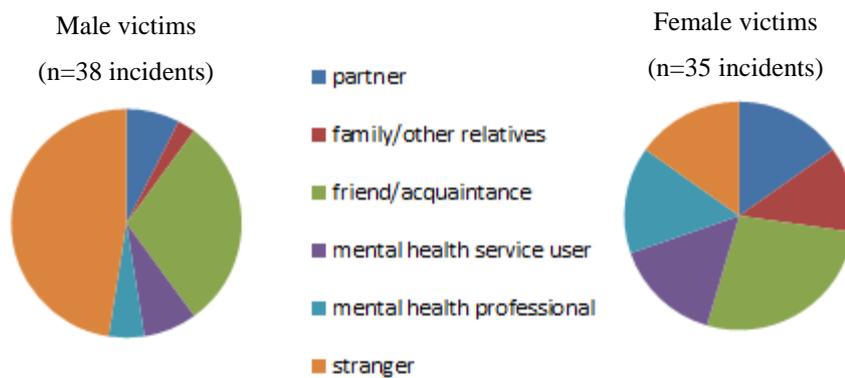
Figure 7-2 Prevalence of past year violence among patients with self-completion data



7.5.3 Perpetrators and location of violence

The perpetrators of all violence incidents by gender are shown in Figure 7-3. Among male victims, strangers were the most frequent perpetrator, followed by acquaintances. Female victims were equally likely to be assaulted by a broad range of perpetrators, including acquaintances, strangers, partners, mental health professionals and other mental health service users.

Figure 7-3 Perpetrators of all violent incidents against men and women

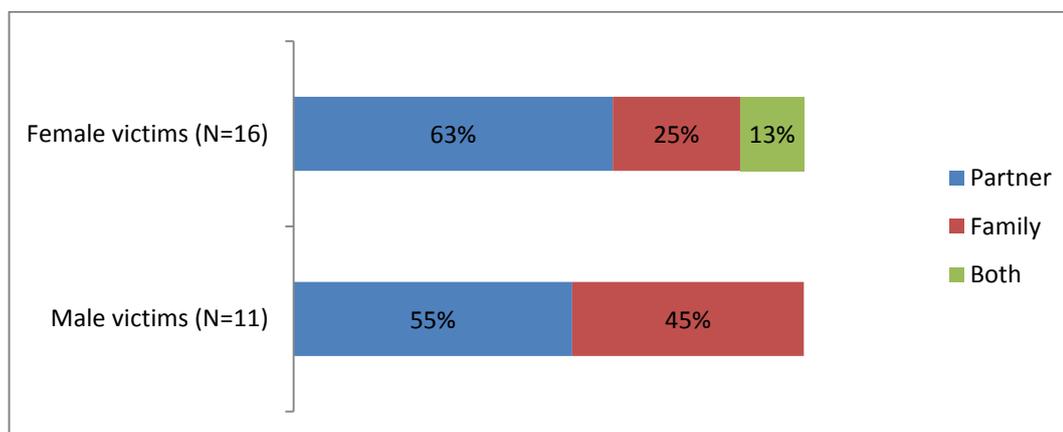


In the following section, the perpetrators and locations of violence incident is detailed separately for domestic and community violence.

7.5.3.1 Domestic violence

Twenty seven patients reported past-year violence, of whom 59% reported partner violence, 33% reported family violence and 7% reported both. Perpetrators of DV by gender of victim are shown in Figure 7-4. Women were more likely than men to report both partner and family violence (13% vs. 0%).

Figure 7-4 Domestic violence: perpetrators



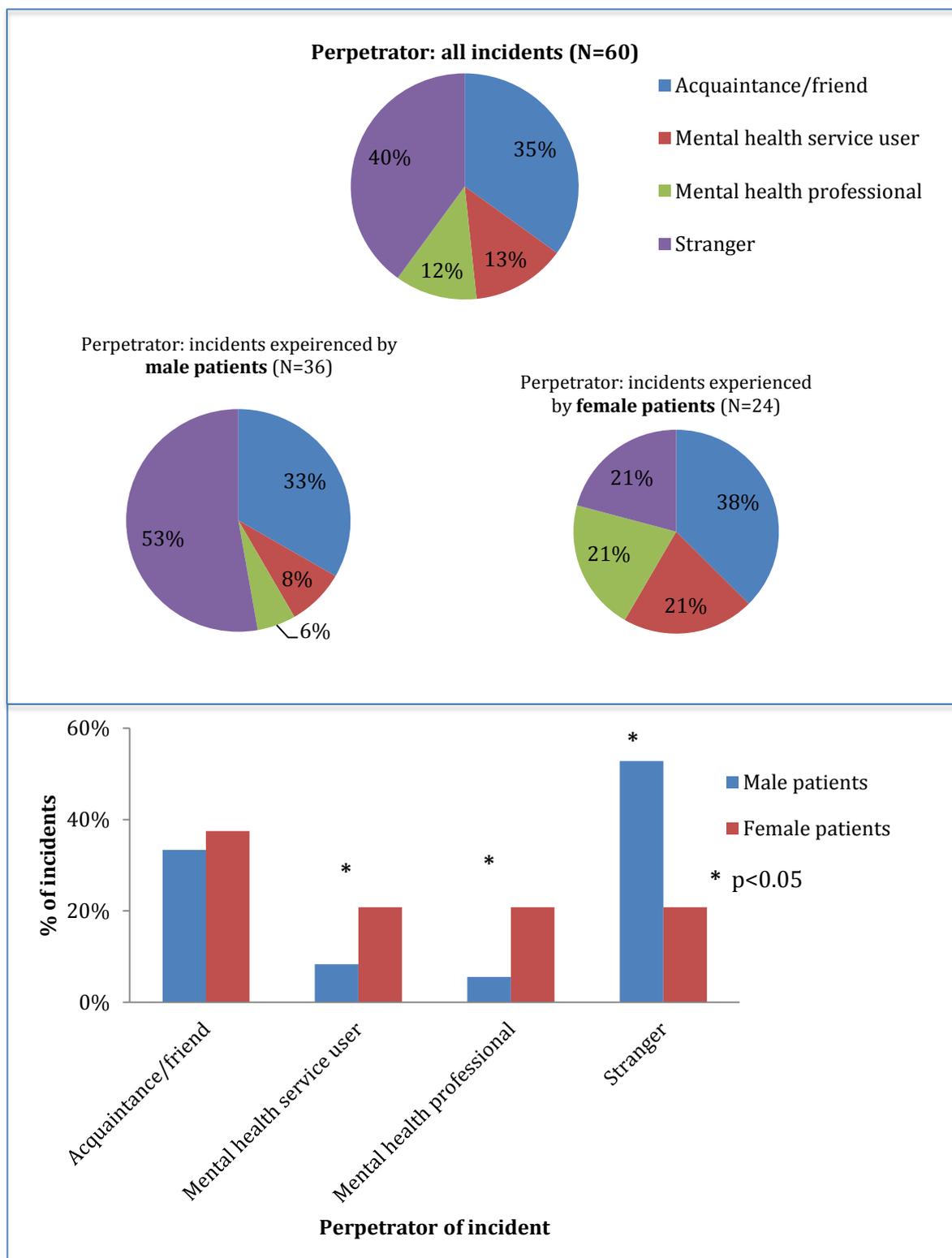
7.5.3.2 Community violence

Fifty six patients reported 60 incidents of community violence, including 57 incidents of physical assault and 3 incidents of sexual assault.

40% of incidents were perpetrated by strangers, 35% by acquaintances unrelated to mental health services, 13% by other mental health service users and 12% by mental health professionals (see Figure 7-5).

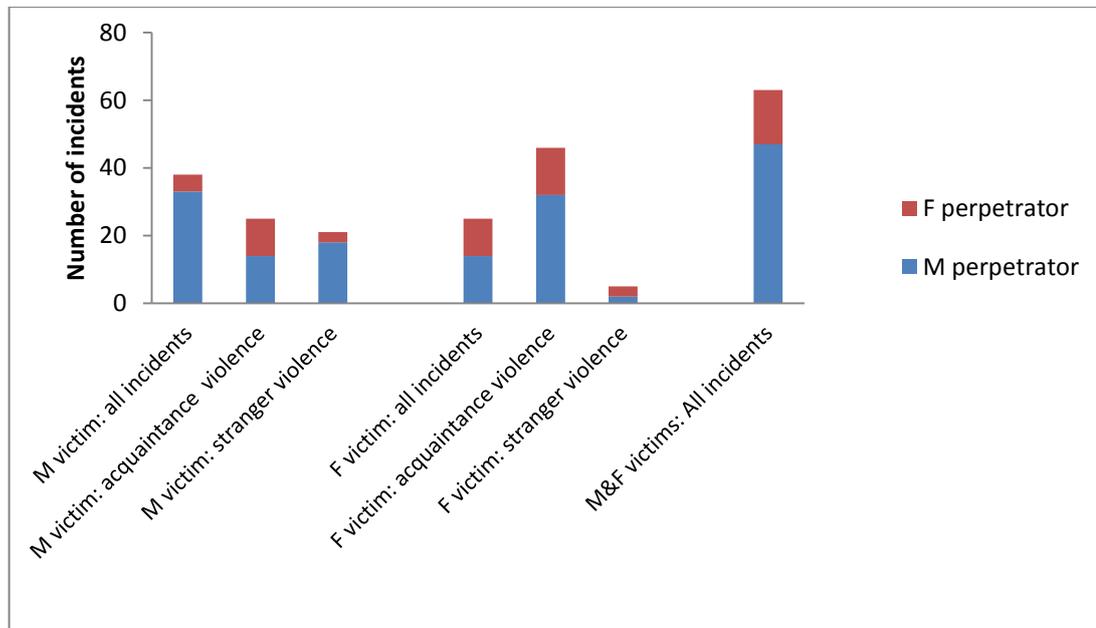
There was a difference in perpetrator by gender of victim ($p=0.04$). Incidents experienced by women were less likely to be perpetrated by strangers (21% vs. 53%) and more likely to be perpetrated by mental health service users or professionals (42% vs. 14%); with a similar proportion perpetrated by other acquaintances (38% vs. 33%) (see Figure 7-5).

Figure 7-5 Community violence: perpetrators



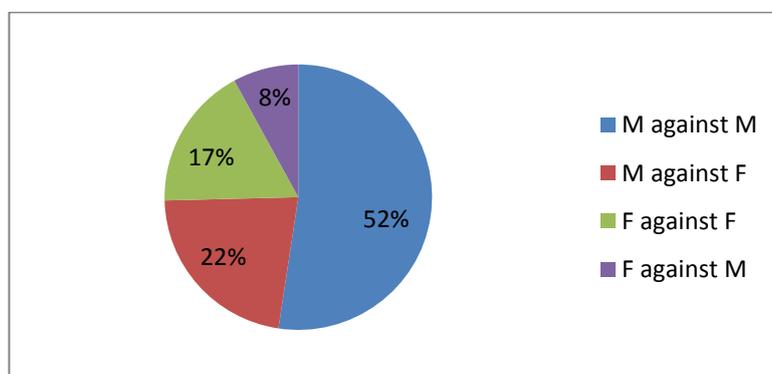
The sex of the offender was known in 57/60 (95%) incidents. Of these 57 incidents, 82% and 28% were perpetrated by men and women respectively. Perpetrator gender amongst male and female victims is shown in Figure 7-6.

Figure 7-6 Community violence: sex of perpetrators (N=57 incidents)



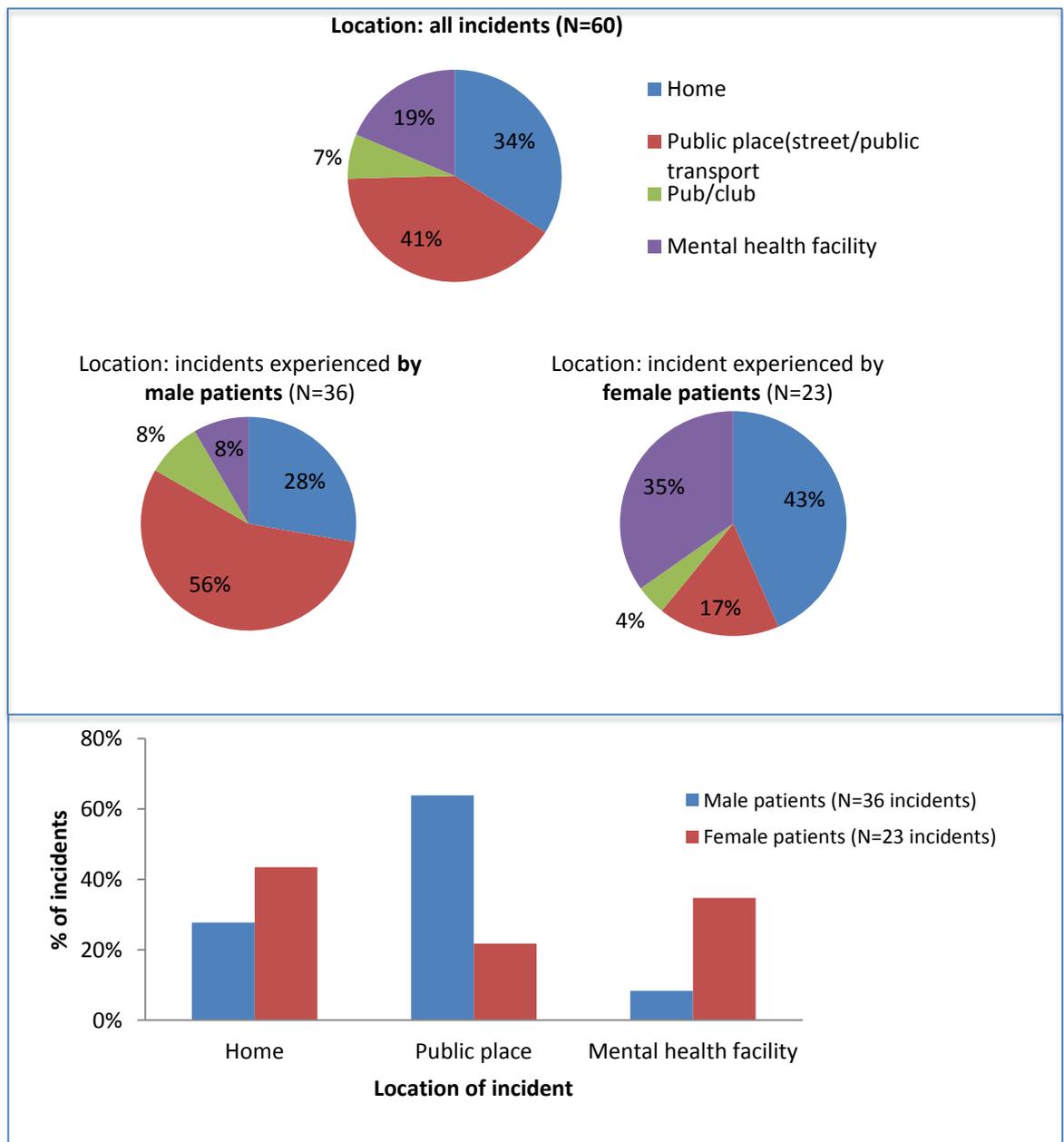
Most incidents involved violence by men against men (52%), followed by violence by men against women (22%) (see Figure 7-7).

Figure 7-7 Community violence: sex of victims and offenders (N=57 incidents)



Location was known for all but one of the incidents (N=59) (see Figure 7-8): most incidents (48%) took place in a public space (street / public transport/pub/club), followed by incidents at home (34%) or in a mental health facility (19%). There was a difference in location by gender ($p < 0.001$). Incidents experienced by women were more likely to occur at home (43% vs. 28%) or in a mental health facility (35% vs. 8%), and less likely to occur in a public place, pub or club (21% vs. 64%) (see Figure 7-8).

Figure 7-8 Community violence: location



The majority of violence by strangers (N=24) was in public places (87%), whilst the majority of violence by acquaintances (N=20) was at home (65%). Violence by mental health service users (N=8) was reported to occur both at home (50%) and in mental health facilities (50%). All reported violence by mental health professional (N=7) occurred on inpatient wards.

7.5.4 Risk factors for violence

The binary associations between community and domestic violence and potential risk factors are shown in Table 7-3 and Table 7-4. These are discussed by domain below. The prevalence of key risk factors is summarized in Figure 7-9, and key positive associations with violence are summarized in Figure 7-10

Figure 7-9 Prevalence of risk factors

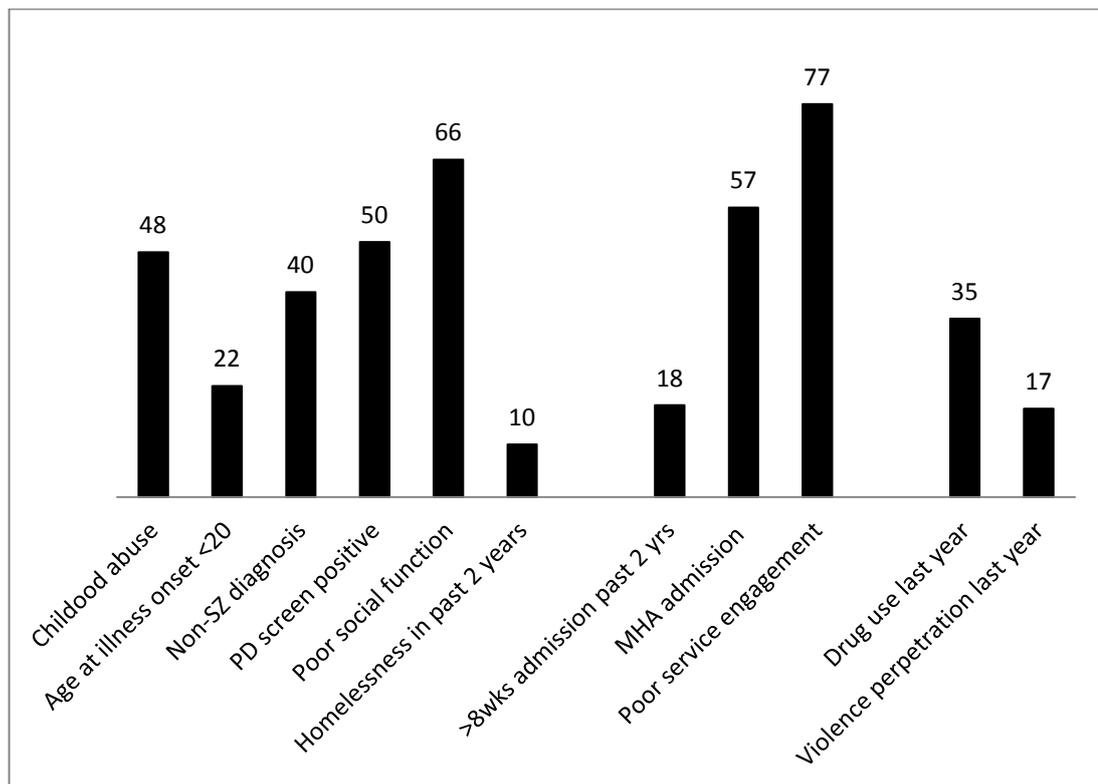


Table 7-3 Socio-demographic and childhood risk factors for community and domestic violence

Risk factor	Victim of community violence			Victim of domestic violence		
	n/N	%	P	n/N	%	p
DEMOGRAPHICS						
Sex			0.97			0.06
Male	29/168	17.3		11/181	6.1	
Female	23/132	17.4		16/134	11.9	
Age			<0.01			<0.001
50-65	7/73	9.6		1/75	1.3	
35-<50	21/140	15.0		13/151	8.6	
25-<35	15/65	23.1		5/67	7.5	
16-<25	9/22	40.9		8/22	36.4	
Ethnicity			0.17			0.56
White	17/124	13.7		9/129	7.0	
Asian/Chinese/other	24/105	22.9		12/111	10.8	
Black/Black British	11/71	15.5		6/74	8.1	
Marital status			0.47			0.37
Single	40/218	18.3		19/226	8.4	
Married / cohabiting	2/22	9.1		4/25	16.0	
Divorced/widowed/separated	8/55	14.5		4/59	6.8	
Has children			0.78			0.89
No	27/153	17.6		40/184	21.7	
Yes	24/146	16.4		37/176	21.0	
SOCIOECONOMIC STATUS						
Educational attainment			0.74			0.18
High	13/82	15.9		4/85	4.7	
Low-medium	27/159	17.0		19/169	11.2	
None	12/58	20.7		4/60	6.7	
Employment status			0.70			0.35
Employed	5/32	15.6		3/33	9.1	
Student/economically inactive	4/32	12.5		5/33	15.2	
Long-term sick/unemployed	43/236	18.2		19/249	7.6	
Housing tenure			0.33			0.17
Owners	1/20	5.0		4/20	20.0	
Private renters	16/87	18.4		7/94	7.4	
Social renters	34/192	17.7		16/200	8.0	
Social class (by HRP profession)			0.88			0.36
High	7/40	17.5		6/44	13.6	
Medium	10/64	15.6		5/68	7.4	
Low	30/163	18.4		12/169	7.1	

Table 7-3 continued

Risk factor	Victim of community violence			Victim of domestic violence		
	n/N	%	P	n/N	%	p
AREA FACTORS						
Area deprivation			0.53			0.87
Least deprived	6/25	24.0		3/36	8.3	
Intermediate	16/108	14.8		4/118	3.4	
Most deprived	29/159	18.2		16/180	8.9	
Output area classification			0.50			0.33
Multicultural	43/258	16.7		25/269	9.3	
Other	8/38	21.1		2/42	4.8	
SOCIAL SUPPORT / FUNCTION						
Frequency of family contact			0.39			0.30
Most days	30/147	20.4		17/154	11.0	
Weekly/few times a week	13/83	15.7		5/86	5.8	
Less than weekly	8/61	13.1		4/63	6.3	
No. of social contacts/week			0.68			0.82
0-2	17/103	16.5		9/106	8.5	
3-4	28/145	19.3		12/151	7.9	
5-9	6/43	14.0		5/46	10.9	
Social support			0.92			0.69
Low	11/69	15.9		8/71	11.3	
Intermediate	13/74	17.6		6/77	7.8	
High	26/143	18.2		12/149	8.1	
Poor social function			0.10			<0.01
No	12/96	12.5		2/101	2.0	
Yes	38/185	20.5		24/192	12.5	
Homelessness in past 2 years			0.93			<0.01
No	54/321	16.8		22/321	6.9	
Yes	6/37	16.2		8/37	21.6	
CHILDHOOD ADVERSITY						
Foster care / institution as child			0.71			0.93
No	39/231	16.9		21/243	8.6	
Yes	13/69	18.8		6/72	8.3	
Any childhood abuse			0.08			<0.001
No	18/139	12.9		3/144	2.1	
Yes	27/129	20.9		22/131	16.8	
Any childhood neglect			0.10			0.02
No	20/154	13.0		6/129	4.7	
Yes	20/96	20.8		17/135	12.6	

Table 7-4 Clinical / behavioural risk factors for community and domestic violence

Risk factor	Victim of community violence			Victim of domestic violence		
	n/N	%	P	n/N	%	p
CLINICAL						
Diagnosis			0.46			0.02
SZ	28/175	16.0		10/187	5.3	
Not SZ	23/119	19.3		16/122	13.1	
PD screen (SAPAS score)			0.36			<0.01
Score <5	22/143	15.4		5/152	3.3	
Score >=5	28/144	19.4		20/148	13.5	
Illness onset <20 year old			0.15			<0.01
No	33/203	16.3		10/213	4.7	
Yes	14/57	24.6		10/60	16.7	
Illness duration			0.30			0.16
<=5 years	12/50	24.0		7/51	13.7	
>5-<=10 years	14/70	20.0		5/73	6.8	
>10yrs	22/148	14.9		9/158	5.7	
Admitted > 8 weeks last 2 years			0.04			0.52
No	35/223	15.7		19/234	8.1	
Yes	14/50	28.0		3/54	5.6	
MHA admission ever			0.02			0.04
No	12/107	11.2		13/114	11.4	
Yes	32/144	22.2		7/151	4.6	
Poor service engagement			0.03			0.56
No	3/37	8.1		2/39	5.1	
Yes	30/121	24.8		10/129	7.8	
SUBSTANCE MISUSE						
Alcohol misuse (AUDIT)			0.43			0.37
Non-hazardous drinking	24/162	14.8		11/169	6.5	
Hazardous drinking	6/25	24.0		3/26	11.5	
Dependence	6/29	20.7		4/31	12.9	
Frequency of pub visits			0.96			0.62
None	32/187	17.1		15/198	7.6	
<once/week	13/70	18.6		7/72	9.7	
>=once/week	7/41	17.1		5/42	11.9	
Drugs use past year			<0.001			<0.01
No	22/186	11.8		10/194	5.2	
Yes	27/99	27.3		15/104	14.4	
VIOLENCE PERPETRATION						
Past-year violence perpetration			0.04			<0.001
No	36/242	14.9		13/252	5.2	
Yes	13/48	27.1		12/51	23.5	
History of any violent conviction			0.99			0.84
No	35/207	16.9		19/217	8.8	
Yes	9/53	17.0		3/58	5.2	

7.5.4.1 Socio-demographic risk factors

Domestic violence was more prevalent among the young ($p < 0.001$), women ($p = 0.07$), those with poor social function ($p < 0.01$) and those with a history of homelessness in the past 2 years. Community violence was only associated with younger age ($p < 0.001$). Ethnicity, marital status, socio-economic status, area deprivation and the extent of social support / contacts were not associated with either violence type.

7.5.4.2 Childhood adversity

Domestic violence was strongly associated with childhood abuse ($p < 0.001$) and childhood neglect ($p = 0.02$), whilst community violence was weakly associated with childhood abuse only ($p = 0.08$). Being fostered or institutionalised in childhood was not associated with either violence type.

7.5.4.3 Clinical factors

Domestic and community violence had distinct risk factors. Domestic violence was associated with a non-schizophrenia diagnosis ($p = 0.02$), co-morbid personality disorder ($p < 0.01$) and early illness onset ($p < 0.01$). Community violence was associated with frequent recent admissions ($p = 0.04$), a history of admission under the MHA ($p = 0.02$) and poor service engagement ($p = 0.03$). Duration of illness was not associated with either violence type.

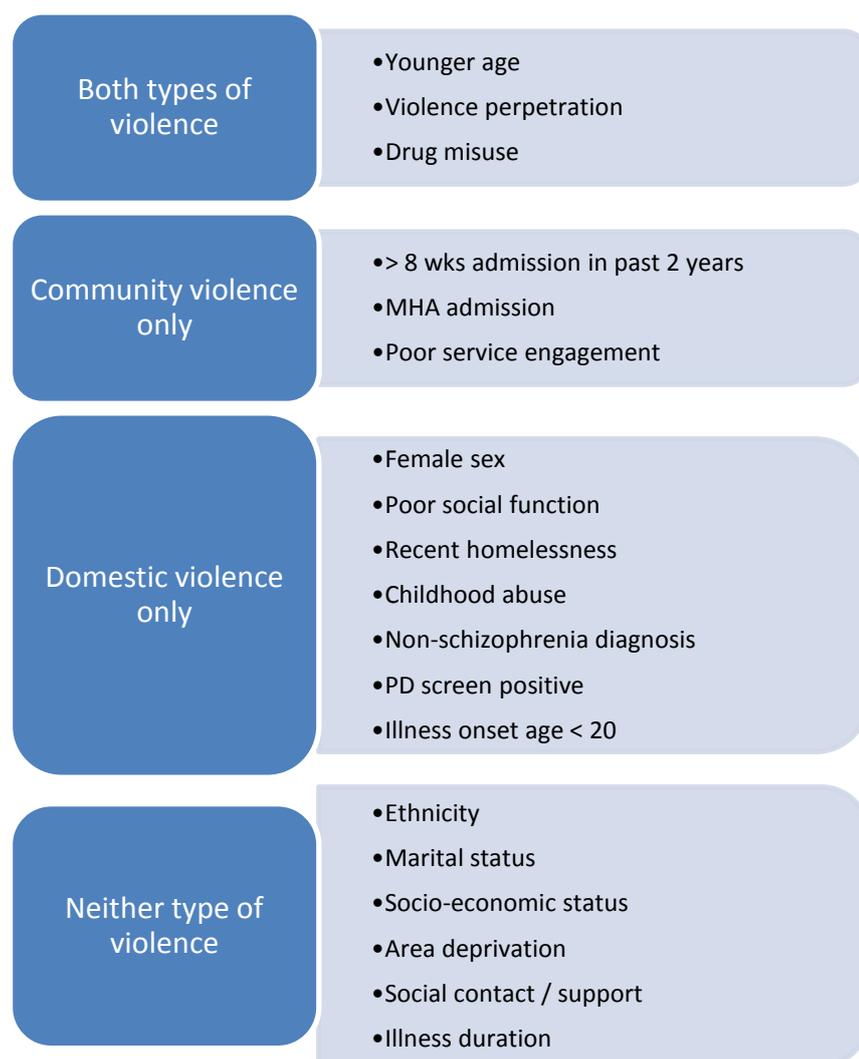
7.5.4.4 Substance misuse and violence perpetration

Domestic and community violence were associated with past-year drug misuse ($p < 0.01$ for both) and any past-year violence perpetration ($p < 0.001$ and $p = 0.04$ respectively). Neither violence type was associated with alcohol misuse / dependence, frequency of pub visits or a history of convictions for violent crime.

7.5.4.5 Summary of binary associations

Domestic and community violence were both associated with younger age, drug misuse and violence perpetration, but they had distinct clinical and demographic risk factor associations, as summarized in Figure 7-10. Neither violence type was associated with socio-economic status or social support / contact.

Figure 7-10 Summary of risk factors associated with domestic and community violence



7.5.4.6 Crude and adjusted OR

The association between the risk factors above and domestic or community violence, adjusted for age and sex, are shown in Figure 7-11 and Figure 7-12 respectively. The adjusted relative odds for domestic violence ranged from 2-fold to eight-fold, with highest relative odds for childhood abuse and poor social function. The adjusted relative odds for community violence ranged from two-fold to four-fold, with highest relative odds for poor service engagement. In multivariate models, which included the relevant variables from Figure 7-10, domestic violence was independently associated with violence perpetration (OR 5.1, CI 1.1-22.8) and childhood abuse (OR 14.1, CI 1.2-160.4); whilst community violence was only independently associated with younger age ($p=0.02$).

7.5.4.7 Risk factor-sex interactions

The association between domestic violence and risk factors did not differ by sex for any of the risk factors examined. The association between community violence and risk factors differed by sex for personality disorder only; which was strongly associated with community violence in women but not associated with community violence in men (at the 5% significance level).

Figure 7-11 Risk factors for domestic violence: OR adjusted by age and sex

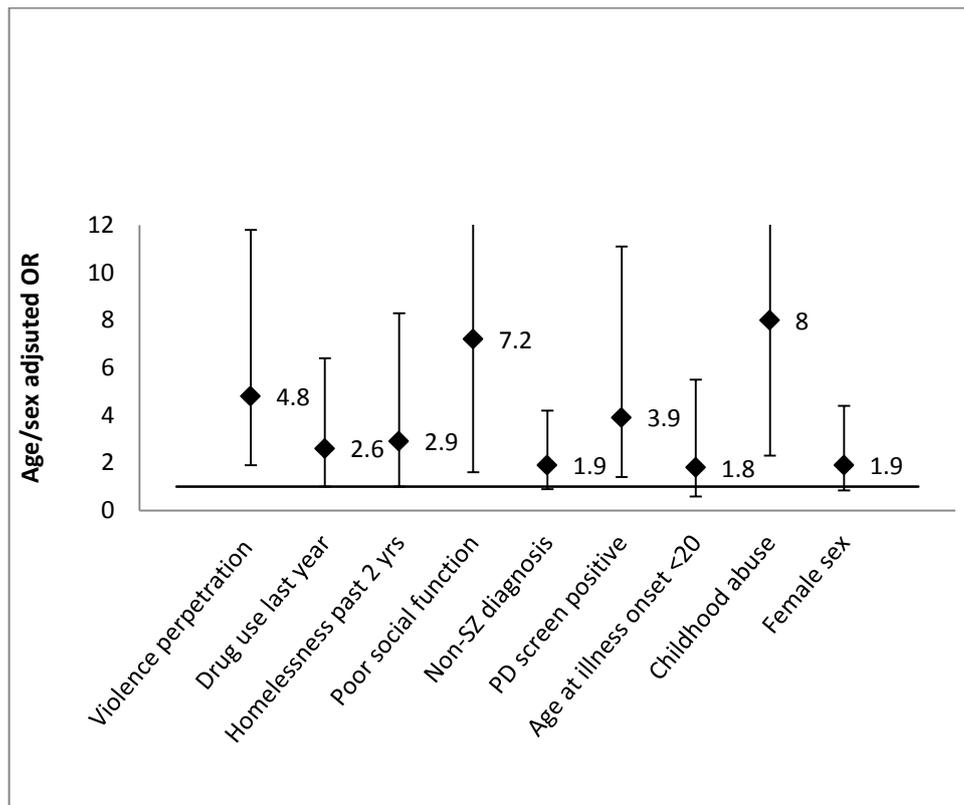
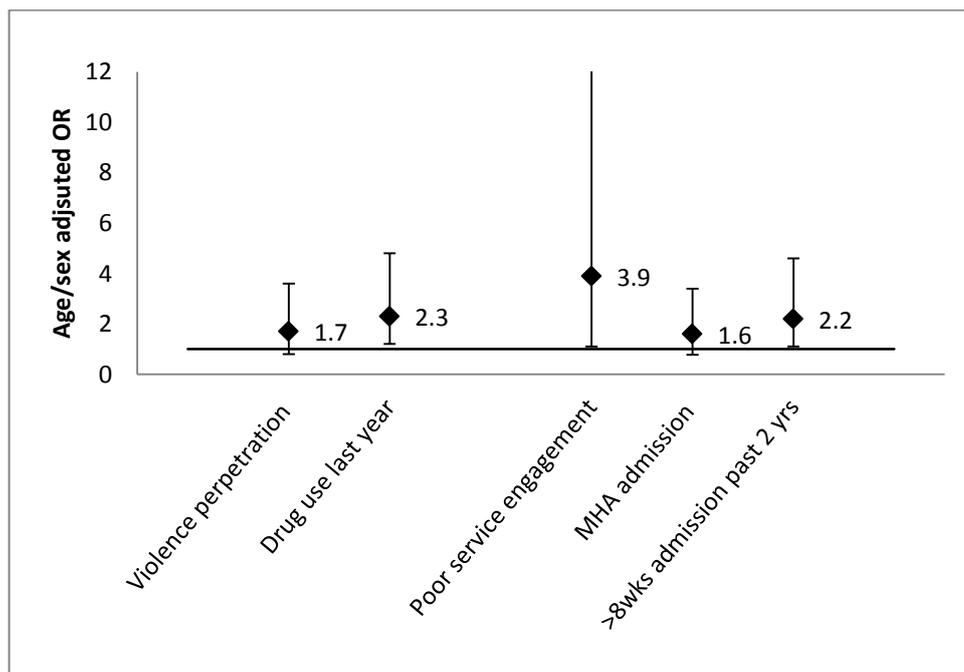


Figure 7-12 Risk factors for community violence: OR adjusted by age and sex



7.6 Quantitative study: Discussion

Women with SMI were more likely than men with SMI to experience domestic and sexual violence, reflecting findings in the general population. Men and women with SMI were equally likely to experience community violence, which contrasts with the general population, where women are at lower risk. Therefore, the protective effect of female gender is absent in the SMI population. Again, unlike in the general population, none of the markers of social deprivation (education, employment, tenancy, social class, area deprivation) were associated with an increased risk of violence victimisation. Put another way, social advantage- which is protective in the general population- does not appear to be protective in the SMI population. The protective effect of female gender and social advantage in the general population may be related to social roles and the quality of social networks and interpersonal relationships in these groups. It could be hypothesised that these potential mediating factors are disrupted among people with SMI, regardless of their gender and social status, such that gender and social status are no longer protective against victimisation. Another potential explanation for the apparent lack of protective effect of social advantage is the low prevalence of social affluence in this population. In this study sample, 10% or less were employed, owned their house or lived in the least deprived areas. Given the high levels of social deprivation the study would be underpowered to detect a protective effect of social affluence.

The context of community violence against men and women with SMI differed in terms of perpetrators and locations. Compared to men, women were less likely to be assaulted by strangers in a public place. There were more likely to be assaulted by people they knew-including acquaintances, other mental health service users and mental health professionals- and more likely to be assaulted at home or in a mental health facility. The finding on violence by mental health professionals was explored in the qualitative analysis, and will be discussed below.

Community and domestic violence were both associated with violence perpetration and substance misuse. These risk factors are shared with the general population. Other risk factors were uniquely associated with either community violence (poor service engagement, history of MHA admission, recent prolonged admission), or

domestic violence (female gender, childhood abuse, young illness onset, non-schizophrenia diagnosis, personality disorder co-morbidity, poor social function and recent homelessness). In general, risk factors for community violence were dynamic and related to recent illness severity, whereas those for domestic violence were related to early experiences or the nature of the illness. Surprisingly, recent homelessness was not associated with community violence (where prevalence of victimisation was high whether or not patients had been homeless), but it was associated with a three-fold increased risk of domestic violence. It is possible that historical domestic violence (where patient may have been victim or perpetrator) had contributed to the homelessness (i.e. that there was reverse causality).

The association of female gender and childhood abuse with adulthood domestic violence are not surprising, and reflect findings in the general population. The differences in the clinical correlates of domestic and community violence are novel, and warrant replication. If replicated, this would suggest the need for distinct interventions for these violence types. In particular, it would suggest that interventions for domestic violence would need to take into account childhood abuse and its subsequent impact on personality and interpersonal function; whilst interventions for community violence would need to target service engagement and recent acute illness.

The above findings were not hypothesised a priori. The relevant analyses involved multiple testing, and so may be subject to type I errors (false positives). Some risk factors had a low prevalence of one of the exposure levels (e.g. social affluence), and so type II errors were possible. Nonetheless, the findings that female gender and social advantage are not protective of victimisation in the SMI population, and that there are distinct clinical correlates for domestic and community violence, are of interest in terms of developing and targeting interventions. . In the next section, qualitative findings on the interpersonal context of violence experiences are presented, including a discussion linking the quantitative and qualitative findings where they are complementary.

7.7 Qualitative study: Introduction

In order to understand the nature and causes of violence experienced by people with SMI, it is important to complement quantitative analysis with a qualitative account of violence experiences. As shown above, quantitative analyses identify a broad range of demographic, behavioural and clinical risk factors for victimisation, which are likely to interact in complex ways. Qualitative studies can help to explain the way in which these factors lead to vulnerability to violence experiences.

Past qualitative studies have investigated the experiences of disclosure of victimisation among people with SMI to health professionals or criminal justice agencies, from the perspective of victims, health professionals and criminal justice practitioners. [6, 18, 163, 164] However, there is little evidence on the perceived causes of victimisation from the perspective of patients or professionals.

The aim of this study was to complement the quantitative analysis of risk factors for violence with a qualitative account of the perceived context and causes of violent incidents experienced by people with SMI.

7.8 Pilot of qualitative methods

In designing the qualitative component of the study, several methods were considered and piloted- at the same time as the piloting of the survey questionnaire. The preferred method was a semi-structured interview, since this would allow an in-depth exploration of key themes in a methodologically rigorous manner, but unfortunately this did not prove to be feasible in this study. Participants for the qualitative study were to be recruited from survey respondents who disclosed recent victimisation. The first method we piloted was to invite eligible survey respondents to take part in a semi-structured qualitative interview at a later date. This was not acceptable to many pilot participants. All survey participants had to be asked a number of open-ended questions about victimisation incidents, so that the nature of these incidents could be determined and coded in line with Home Office methodology. Many pilot participants wanted to talk about their experiences during the survey interview, and did not want to return at a different time to discuss these experiences in more depth. We therefore piloted an audiotaped semi-structured

interview during or immediately following the survey. Researchers and participants found it difficult to switch between a highly structured quantitative survey (where responses were being entered electronically during the interview), and a more in-depth open-ended audiotaped discussion. In addition, the participant burden was too high as the study interview was too long.

We therefore piloted an alternative design; we expanded the scope of open-ended survey questions and elicited more in-depth responses to them. We retained the open-ended question from the ONS's crime survey (see section 7.8. Q1), and added three further questions on impact, perceived cause and perceived link to mental illness (see section 7.8, Q2-4). Participants were asked these questions at the beginning of the victimisation module and encouraged to expand on their responses with probe questions. The responses were recorded by the interviewer at the time, either electronically (when internet access was available and a computer-assisted survey was conducted) or in writing (if a paper-based survey questionnaire was used). This method was the most acceptable to patients, so was used in the study. The pilot suggested that the response rate to the alternative (preferable) method of in-depth interviews was likely to be low, and the findings may not have been representative. The chosen method has clear limitations, which are discussed in section 7.10.2. Despite its limitations, the qualitative study reported here has value in helping to interpret quantitative findings, to generate hypotheses for future work and to identify directions for a more methodologically rigorous qualitative study.

7.9 Qualitative study: Methods

This analysis included all incidents of violence reported in the main interview in the patient victimization survey. Framework Analysis [204, 205] was used to analyse the responses to the following open-ended questions:

1. Before I ask you a number of detailed questions to enable us to understand exactly what happened can you tell me, briefly, about the incident?
2. In what way did this incident affect you?
3. Why do you think this incident happened?
4. To what extent do you think this incident occurred as a result of your mental health problems (if at all)? In what way?

Answers were typed or written up by interviewers during the course of the interview, using a verbatim account where possible. All the interview transcripts were read before coding, to gain familiarity with the range of experiences and themes.

Before coding, incidents were grouped by victim-perpetrator relationships into those perpetrated by intimate partners, family members, acquaintances or strangers. Within groups, the situational context of each incident was coded, to extract key themes related to gender relations, proximal triggers (related to victims, perpetrators or environment), patterns of violence over time and perceived motivation for violence. The coding process included a deductive approach, whereby pre-defined codes were used (e.g. victim and perpetrator gender, involvement of substance misuse, use of mutual violence), and an inductive approach, whereby novel concepts of relevance to the research questions were added to the coding frame.

In choosing relevant conceptual codes, theoretical insights from Weiner's causal attribution theory were used. [206, 207]. Weiner proposed the following dimensions of causality:

- Locus: whereby causes are classified as internal (factors within the person) or external (factors within others or the environment)
- Stability: whereby causes are classified as constant (e.g. personality) or variable (e.g. mood)
- Controllability: whereby causes are classified by the extent to which they are under voluntary control
- Intentionality: the degree to which personal responsibility can be assigned to a course of action
- Globality: where causes are not specific to a certain situation, but can be generalized to situations across time and space

This framework can be helpful in understanding people's perceptions of why violence occurred; for example whether they relate the incident to victim, perpetrator or environmental factors; whether causes are perceived as stable (e.g. aggressive personality) or variable (e.g. angry mood); perceived intentions (e.g. to harm, exploit or express frustration); and to what extent recurrent violence is perceived to be due to common factors.

After coding the first few incidents, an initial analytic framework was developed, grouping related concepts into categories. This framework was applied to the remaining incidents, revising the framework and re-analysing data when new concepts emerged. Data was charted into a framework matrix using Excel. The data was interpreted by comparing and contrasting the coding frameworks for domestic and community violence, by reflecting on how the emerging themes related to the conceptual framework discussed in earlier chapters, and how the themes related to the findings from the quantitative analysis.

7.10 Qualitative study: Results

7.10.1 Situational context of violence incidents

Sixty eight patients reported violent incidents in the main interview. Qualitative data was available for 63 (93%) of these patients, for a total of 69 separate incidents. The results of the qualitative analysis are presented in turn for incidents of domestic, acquaintance and stranger violence, followed by a discussion of similarities and differences across violence types. The results are summarized graphically in

Figure 7-13 to Figure 7-15, which include key codes and categories, as well as the gender of victims and perpetrators.

7.10.1.1 Situational context: domestic violence

Incident-based analysis (on situational context of DV) was only available for the small number of incidents reported in the main interview (N=13, experienced by 13 patients) (see

Figure 7-13). Similar data was not measured for DV reported in the self-completion modules. All partner violence incidents (N=7) were perpetrated by a person of the opposite sex. Four of the six incidents of family violence were perpetrated by men.

Context: controlling, unprovoked and conflict-based violence

Partner violence was described as either controlling violence or conflict-based violence. Controlling violence involved recurrent unprovoked attacks, associated with intimidation and fear (mainly by men vs. women):

“The last two incidents were unexpected. He just started to get aggressive and hit me in the face. He was angry with me over something- without (me) realising it, I said something that irritated him. When he hit me, I provoked him further.” (Female victim of IPV, ID 442128)

“I was bruised, so I didn't want to go out and was quite frightened of men, I felt quite worthless”. (Female victim of IPV, ID 454994)

Conflict-based violence involved arguments precipitated by substance misuse or mutual violence (mainly by women vs. men).

“I spent some money (on drugs). My wife laid into me about it, punched me a few times. I shouldn't have spent the money.” (Male victim of IPV, ID 525333)

Family violence, like partner violence, was described as either conflict-based or unprovoked. However, unlike partner violence, the latter was mainly single incidents without clear controlling behaviour, and without clear gender patterns.

Locus: factors related to victims, perpetrators and broader context

When describing controlling or unprovoked incidents, participants reported perpetrator-related factors as proximal triggers:

“Just the type of man he was - a bit of a bully” (Female victim or IPV, ID 454994)

When describing conflict-based violence, participants reported both victim and perpetrator-related factors.

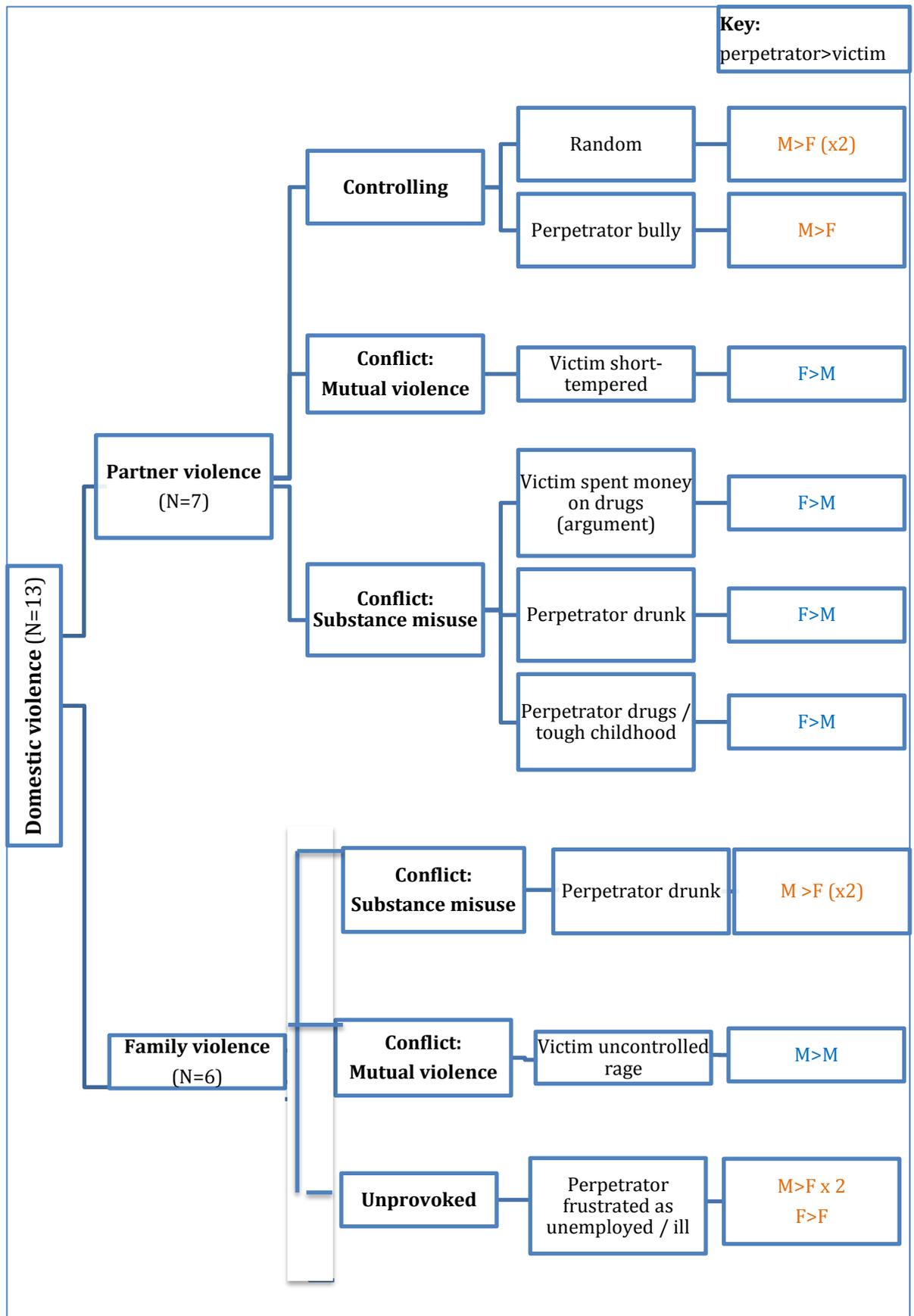
“I lose my temper easily, I get frustrated.” (Female victims of IPV, ID 441973)

Broader contextual factors, such as unemployment or childhood experiences, were more often described in conflict-based than controlling incidents.

“I think he was fed up - he hadn't had a job that time.” (Female victim of family violence, ID 449929)

“I think it's to do with drugs, as she smokes a lot of cannabis. She had a tough upbringing and no father, just her mum and her mum didn't seem 100%. Her brother lived with them and he was an alcoholic, plus he went in prison as well. She also had a son at age 13 before she met me, so all that has had an effect on her.”

Figure 7-13 Situational context of domestic violence incidents



7.10.1.2 Situational context: acquaintance violence

The analysis included 33 incidents of acquaintance violence (experienced by 32 patients), including 20 by acquaintances or friends unrelated to mental health services (reported by men and women), and 13 by mental health service users or professionals (mainly reported by women). There were no clear gender patterns.

Context: illness, power, exploitation and conflict

Violence perpetrated by other mental health service users was mainly attributed to the perpetrators' acute illness:

“The lady is mentally disturbed and she drinks whiskey. I don't think she takes her medication.” (Female victim of violence by MHSU, ID 552011)

Some victims expressed empathy and concern for the perpetrator, whilst others expressed negative attitudes:

“I asked (another patient) who was on phone. He kicked me in the face...I did not want the police called as I did not want him to get into trouble and could understand why he did it”. (Female victim of MHSU, ID 514135)

“This guy returned from having leave. He made a gun sign at me...He punched me in head. He was just a psycho.” (Male victim of MHSU, ID 547785)

“I fear all mental health people, they can change at any time.” (Female victim of MHSU, ID 552011)

Violence perpetrated by mental health professionals was given different explanations, related to the victim's disturbed behaviour, the frustrations of being deprived of liberty, and in one instance to the power imbalance between the patient and the professionals:

“On a real scale, it's because he knows that his word will be taken over mine. It happened because I was under section...because there were no cameras...and

because he can't control his anger." (Female victim of violence by MHP, ID 424828)

Some of this violence occurred in the course of 'control and restraint' by staff, whilst others occurred in variable contexts (e.g. during escorted leave, during conflict related to leave, medication, unaddressed requests from staff or disturbed behaviour by other patients).

Violence perpetrated by other acquaintances occurred across a broad range of situations (exploitation, conflict, unprovoked), but two contexts of interest are those relating to substance misuse and those relating to targeted violence / exploitation.

Explanations involving substance misuse ranged from substance misuse by victims or perpetrators at the time of the incident triggering violence, to conflict over money owed to drug dealers, to violence directed at a patient who refused to buy drugs:

"The neighbour invited this guy round to my house, he said he was gay and we could make friends but he wanted me to buy him crack and when I wouldn't he hit me with the TV and smashed it". (Male victim of acquaintance violence, ID 577417)

Targeted violence or exploitative crime included rape or sexual violence following deception of vulnerable women, and incidents more specifically motivated by victims' mental illness (some of which had a controlling element):

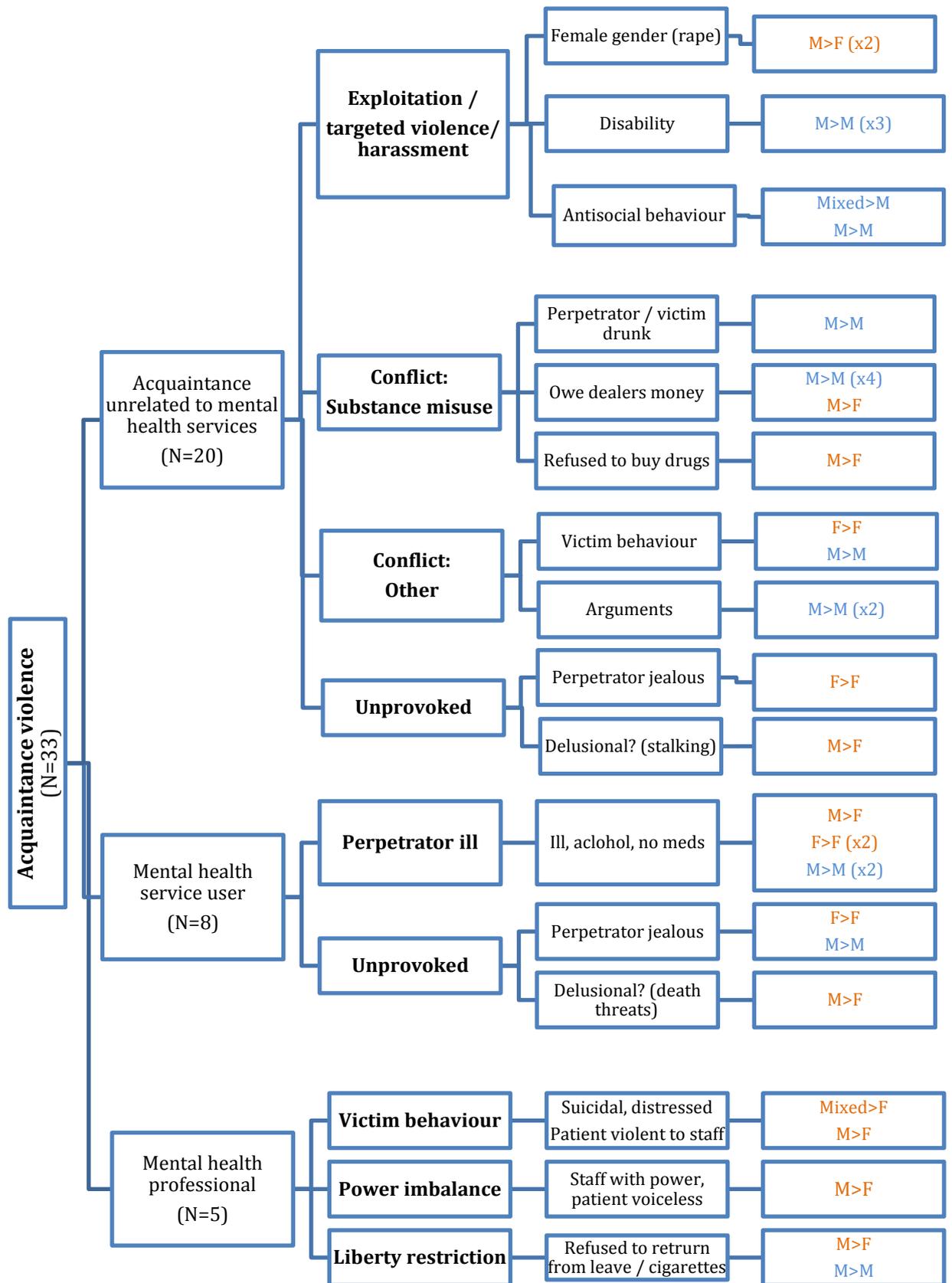
"This bloke came round to borrow money. I said I hadn't got any because I was sick of him borrowing and not giving it back. He grabbed me by the throat and punched me in the face. I think he knows I'm scared of him...now he knows I'm ill he's giving me a hard time." (Male victim of acquaintance violence, ID 548028)

There were two incidents where the explanation given appeared to be delusional, although it was difficult to know whether at least some of the account had a basis in reality:

"I was hit over the head with a metal bar. People came past me, mumbled something, wacked me over the head. (It happened because) society is breaking

down. The second (reason) is my delusion that I'm on a sacred mission to save humanity and people who recognise that would do anything to stop me.” (Male victim of violence by local youths, ID 495678)

Figure 7-14 Situational context of acquaintance violence incidents



7.10.1.3 Situational context: stranger violence

The analysis included 23 incidents of stranger violence (experienced by 21 patients), the majority of which involved violence by men against men. The main contexts of interest were targeted violence, incidents triggered by illness-related behaviour and violence related to substance misuse.

Context: targeted violence, illness and conflict

The targeted violence was reported as being directed at the victims' gender, race or disability related to mental illness:

“A lot of people know me round here and basically I am a laughing stock. It's ignorance. People who are fun seeking and don't know much about mental illness.”

(Male victim of stranger violence, ID 509660)

Some patients reported vulnerability due to acute illness, which led to conflict, and impaired their ability to recall or understand the incident:

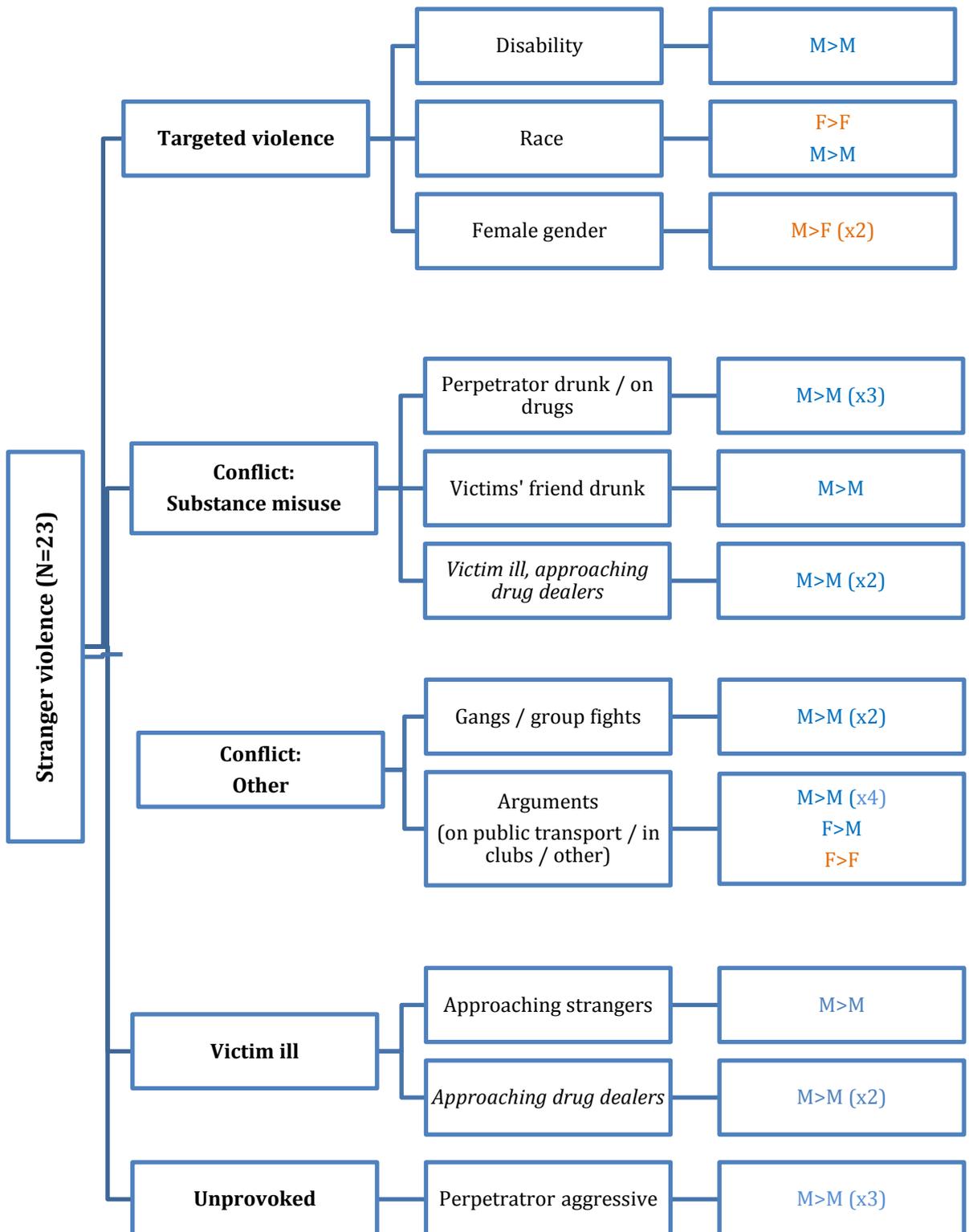
I was having an episode - which relates to my bipolar. I left my house and went for a walk and found myself at the bus stop. Don't remember how the argument started but it did and the man said I should follow him so I did. I didn't see he had the bottle in his hands, but I felt it hit me. (Since then) I've become a bit more recluse, I was coming out of my shell but now I've gone back in....I can't pinpoint why we started arguing. It's difficult to remember everything in sequence when you have bipolar”

(Male victim of stranger violence, ID 579661)

The incidents involving substance misuse included intoxication by victims, perpetrators or their peers, and acute illness leading to inappropriate behaviour towards drug dealers:

“When I start to get sick I start to think I'm on a mission from god and I think it's my job to go and tell crack heads and dealers the error of their ways. I look to pick on the worse characters on the block... (The incident happened) because I put myself in jeopardy when I am unwell”. (Male victim of stranger violence, ID 588211)

Figure 7-15 Situational context of stranger violence incidents

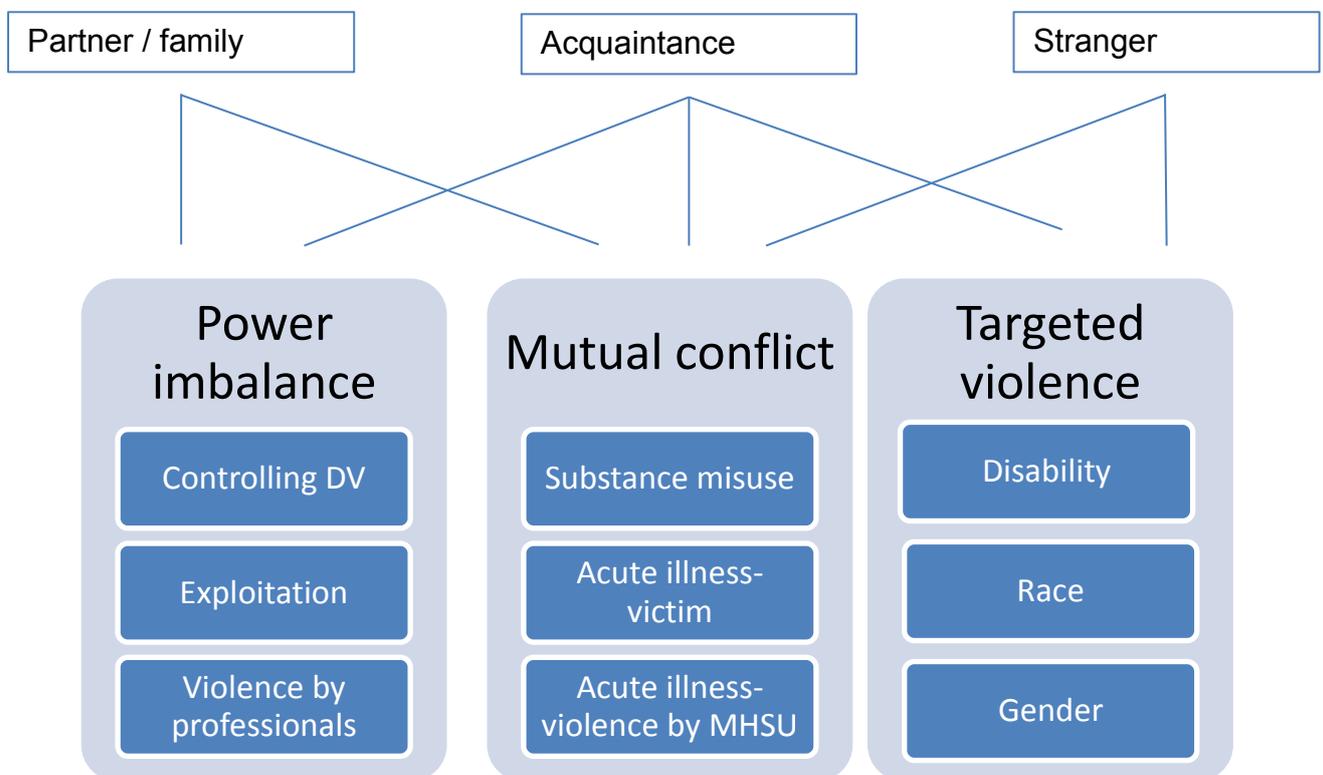


7.10.1.4 Situational context across violence types

Contexts of violence were compared across different victim-perpetrator relationships, and the following three cross-cutting themes were developed (Figure 7-16):

- Power imbalance
- Mutual conflict
- Targeted violence

Figure 7-16 Typology of violence experienced by patients with SMI



The first theme is violence involving an imbalance of power, with elements of exploitation or control. This includes controlling partner or family violence, repeated exploitation by acquaintances, and violence by staff towards patients where power dynamics are at play.

The second theme is violence motivated by negative attitudes towards the patients' disability, and / or other personal traits such as race and female gender. This tends to be perpetrated by acquaintances or strangers.

The third theme is conflict-based violence, and can involve any perpetrators. This includes violence triggered by substance misuse (due to intoxication or conflict with drug dealers / users) and violence triggered by illness-related behaviour. The latter includes behaviour by patients which puts them at risk (at home, in the community or on the wards), and violence perpetrated by other mental health service users. Illness-related behaviour and substance misuse can also contribute to the other two forms of violence, but are not central to them.

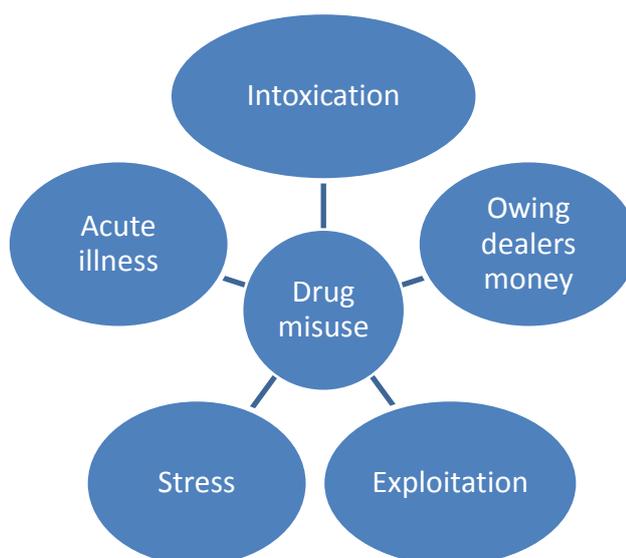
7.10.2 Contribution of mental illness to violence

Participants commented on the contribution of their mental illness to the incident they experienced in 20 incidents, including 2 perpetrated by partners, 4 by mental health professionals, 1 by another patient, 5 by other acquaintances and 8 by strangers. The following themes emerged, many relevant to multiple perpetrators:

- Drug addiction
- Vulnerable due to illness (negative attitudes / exploitation)
- Vulnerable due to medication (decreased awareness / stigmatising weight gain)
- Violent psychiatric wards
- Illness-related behaviour

In terms of drug addiction, there were multiple pathways to victimisation, as summarised in Figure 7-17.

Figure 7-17 Causal links between drug misuse and victimisation



In terms of illness related behaviour, patients described a range of behaviours or emotions which they felt contributed to violent incidents, including acute distress or suicidality (leading to violence by mental health professionals) and being irritable, too trusting, paranoid, disinhibited or intrusive (leading to violence by strangers).

In terms of negative attitudes directed at patients, patients described bullying or exploitation by acquaintances and strangers. One participant, who had been the victim of violence and antisocial behaviour on his estate, described his attempts at addressing negative attitudes:

“I know I don't walk normally. I stagger and that upsets people. I don't make enough effort with how I dress. Obviously it doesn't help. When I first moved I made a massive effort and cut my hair but it made no difference so I went back to how I am.” (Male victim of stranger violence, ID 495678)

7.11 Qualitative study: Discussion

7.11.1 Key findings

Using qualitative accounts of violence incidents by victims with SMI, framework analysis was used to understand the context and causes of victimisation in this population. Domestic and community violence occurred in a broad range of

contexts, but three themes identified common contexts across the different victim-perpetrator relationships. The first theme, ‘power imbalance’, involved violence by a perpetrator in a position of power over the patient. The second theme, ‘targeted violence’, involved violence motivated by negative attitudes towards one or more of the patient’s traits; including their disability, gender or race. The third theme, ‘mutual conflict’, involved violence revolving around an argument or a conflict, often precipitated by substance misuse or acute illness.

There were three areas where the qualitative data could help with interpretation of the quantitative findings: violence by mental health professionals; the relationship between mental illness and victimisation; and the relationship between substance misuse and victimisation.

In the main survey, around 12% of community violence incidents reported by participants were perpetrated by mental health professionals (21% and 6% of incidents against female and male patients respectively). The qualitative data show that the majority of these incidents occurred in the course of inpatient admissions, and that they tended to be triggered by either acute patient illness (sometimes leading to restraint procedures) or by tensions related to restriction of liberty. The power imbalance between patients and staff was perceived as a potential contributor to violence by staff. The excess reporting of these incidents by female compared to male patients may reflect a true difference in their frequency, or may reflect a gender difference in the extent to which these clinical encounters are perceived by patients as an assault. Inpatient admissions aim to provide a place of safety and recovery, so the perception of patients that such incidents constitute an assault is important, regardless of the context in which they occurred.

In terms of the link between illness severity and violence, the quantitative findings indicated that community violence was related to acute recent illness, whilst domestic violence was related to childhood abuse and the nature of the illness (early onset, co-morbid personality disorder). This was mirrored in the qualitative data, where the themes related to domestic violence related to patterns of inter-personal communication not directly related to acute illness, whereas the themes related to community and stranger violence included several contexts more specific to acute

illness- such as violence on wards, and acutely disturbed behaviour making patients vulnerable in community. Some of the themes that emerged from the qualitative data were not captured in the quantitative risk factors, such as exploitation and targeted violence linked to attitudes towards mental illness; and vulnerability due to psychotropic medication.

Lastly, in terms of the link between substance use and victimisation, the association between drug misuse and victimisation was shown to be related to a broad range of contexts, including violence involving drug deals or exploitative drug users, marital conflict triggered by the financial burden of drug use and the more direct trigger of conflict due to acute intoxication or illness relapse.

7.11.2 Study limitations

As discussed in the introduction, the study method was chosen on the basis of acceptability and feasibility, but it has a number of important limitations. This study used qualitative data collected in the course of a longer, mainly quantitative survey. The analyses were based on relatively brief responses to four open-ended questions, with a limited number of follow-up or probe questions from interviewers. Most of the responses were entered verbatim, but some were transcribed in summary and / or in the third person. There was limited scope for exploring or clarifying responses with follow-up questions. So these were not in-depth interviews, where themes and their meanings could be explored in detail. There was no scope for exploring themes that were not mentioned by the participants, so important themes that participants may have found difficult to broach would have been missed. The data was only analysed at the end of the study, so there was no scope for using emerging themes and findings to refine subsequent interviews. There was limited qualitative data on domestic violence, since most of these experiences were disclosed in the self-completion part of the survey, which did not include a qualitative component. Given these substantial limitations, the findings of this study can be considered a starting point for future in-depth qualitative studies. Nonetheless, the findings were helpful in shedding light on some of the quantitative findings, for example the nature and context of violence perpetrated by mental health professionals.

7.11.3 Findings in the context of past studies

The finding that domestic violence was described as either controlling or as occurring in the context of mutual violence reflects findings in the general population, in a typology articulated by Johnson who differentiated ‘intimate terrorism’ from ‘situational couple violence’. [151] Among people with mental illness, a qualitative study that focused on reporting of victimization by people with mental health problems to criminal justice agencies investigated cause of crime as perceived by the victims, and identified three themes: (1) factors related to acute mental illness (e.g. being perceived as vulnerable, being admitted to unsafe wards, taking more risks, having a reduced ability to protect themselves), (2) targeted violence (targeted at disability, sex or race) and (3) environmental factors (unsafe neighbourhoods or housing). [6] These themes overlap with this study’s findings. This study extends these findings by describing the common and unique contexts of domestic and community violence. The majority of past studies on risk factors for victimization in the SMI population is quantitative, and focuses on the victims’ characteristics. This qualitative study highlights the importance of identifying factors related to perpetrators (e.g. attitudes towards mental illness, substance misuse) and broader contextual factors (e.g. safeguards for psychiatric inpatients, legal sanctions for targeted violence).

7.11.4 Implications for practice and research

Violence prevention measures among people with SMI tend to focus on reducing risk factors within the patients themselves, such as violence perpetration or substance misuse; [190] or on mitigating the psychological consequences of victimisation. [208] The findings of this study suggest that violence prevention measures should also be targeted at violence within mental healthcare settings; at addressing risk factors among perpetrators (e.g. to decrease stigmatising attitudes or increase legal sanctions for targeted violence), and at redressing the power imbalance in many of the relationship formed by people with SMI (with family, acquaintances and professionals).

In this study, around a fifth of non-domestic violence incidents were perpetrated by other mental health service users or professionals, mostly in inpatient psychiatric

wards. Therefore, violence prevention measures should include this setting. The reported assaults by professionals occurred in the context of restraint procedures-triggered by acute illness or conflict around liberty restrictions. Regardless of the trigger, the perception by patients that these incidents constituted assaults has implications for clinical practice and safeguarding policy. For example, staff should receive up to date training on relevant NICE guidance (Violence: The short-term management of disturbed/violent behaviour in in-patient psychiatric settings and emergency departments; NICE 2005), and on evidence-based strategies for reducing conflict on wards [209]. Disclosures by patients that they have suffered abuse or violence during their admission should be independently investigated. The perception by patients that they are being assaulted by staff may account for some assaults by patients against staff, and for reported poor therapeutic relationships on psychiatric wards. It warrants further investigation and focused interventions.

Future quantitative and qualitative research on risk factors within perpetrators, and at the broader social and cultural levels, would help in developing appropriate interventions.

7.12 Conclusion

The quantitative analysis focused on risk factors within the victims themselves. It identified unique correlates for community violence (namely recent, severe illness) and domestic violence (namely female gender, childhood abuse, early illness onset and personality disorder). It suggested the need for distinct interventions for these violence types. The qualitative analysis focused on the inter-personal context of violence from the victims' perspective. It identified three common contexts across victim-perpetrator relationships: mutual conflict, targeted violence and power imbalance. It highlighted the importance of targeting interventions at perpetrator-related factors and the broader social context. Future research should identify key perpetrator and social context-related factors, and develop interventions that address them.

The next and final chapter summarises the findings of the studies reported in this thesis, considers the studies' key limitations, and discusses the implications of the findings for policy, practice and research.

Chapter 8. Conclusion

8.1 Overview

In this chapter, I will summarise the key findings from the studies reported in Chapters 2-7 and their main limitations. I will then outline an updated conceptual framework based on the findings of these studies. I will discuss the implications of the findings for policy and practice. Finally, I will review current evidence on interventions aimed at detecting and addressing victimisation of patients with mental illness, and discuss future research directions.

Table 8-1 summarises the findings of the studies reported in this thesis. There were three key findings across the studies. Firstly, prevalence and risk for all types of violence (physical and sexual, domestic and community) were increased among people with vs without mental illness; more so for patients with SMI (around 3-11 fold) than for those with CMI (around 2-3 fold). Secondly, the psychological impact of violence was greater among victims with than without mental illness- again with a higher risk for those with SMI than CMI. Thirdly, reporting of victimisation to formal agencies, such as the police or health professionals, was as frequent or more frequent among victims with vs without mental illness. These findings, and others on risk factors and gender-related issues, are discussed in greater detail below.

Table 8-1 Summary of aims, hypotheses and findings of studies reported in Chapters 2-7

Ch	Survey, population, outcome	Aims / hypotheses	Findings : prevalence & risk; other findings	Findings : impact, reporting and risk factors	Findings : risk factors
2	<ul style="list-style-type: none"> • Systematic review of 26 studies • People with SMI • Violence by any perpetrator in past 3 years 	<p>Aims:</p> <ul style="list-style-type: none"> • Systematically review literature from 2000-2013 on prevalence, relative risk and risk factors for recent victimisation • Identify sources of heterogeneity • Identify literature gaps 	<ul style="list-style-type: none"> • Pooled prevalence of physical violence 20% in SMI women and men; prevalence of sexual violence 9% in SMI women and 3% in SMI men • Relative risk x5 for physical violence, x8 for sexual violence • No sources of heterogeneity identified • Key gaps: comparative studies; prevalence of violence subtypes by gender 	NA	<ul style="list-style-type: none"> • RFs: violence perpetration, substance misuse, homelessness, illness severity • Not correlated with victimisation: demographics, social deprivation, diagnosis
3	<ul style="list-style-type: none"> • BCS (2009/10) • People with CMI vs those with other disabilities or no disability • Past-year violence by any perpetrator 	<p>Hypotheses:</p> <ul style="list-style-type: none"> • Those with CMI at greater risk of any violence than those with other disabilities or no disability • Health impact greater for disabled than non-disabled violence victims 	<ul style="list-style-type: none"> • Prevalence of any violence among those with CMI 20% • Compared to no disability, risk of victimisation x3 for CMI, x2 for other disabilities • 134,000 annual incidents of violence attributable to disability in England & Wales, at an excess cost of £1.5 billion 	<ul style="list-style-type: none"> • Psychological morbidity in CMI vs non-disabled victims x5 	NA

Ch	Survey, population, outcome	Aims / hypotheses	Findings : prevalence & risk; other findings	Findings : impact, reporting and risk factors	Findings : risk factors
4	<ul style="list-style-type: none"> BCS (2010/11) & APMS (2007) CMI vs no CMI Past-year partner violence (IPV) 	<p>Hypotheses:</p> <ul style="list-style-type: none"> Those with CMI at greater risk of emotional, physical & sexual IPV than those without CMI Health impact greater and disclosure less for CMI than non CMI IPV victims <p>Other aims:</p> <ul style="list-style-type: none"> Describe clinical characteristics of CMI 	<ul style="list-style-type: none"> Prevalence of IPV 20% in CMI women & and 10% in CMI men Risk of emotional , physical and sexual IPV in those with vs without CMI x3, x3 and x5 respectively Clinical characteristics of those with CMI: diagnosis 8% psychosis, 81% common mental disorder; mental healthcare 75% from GP, 20% from psychiatric services 	<ul style="list-style-type: none"> Psychological morbidity in CMI vs non CMI victims x2 Suicide attempts following IPV in CMI vs non CMI victims x5 (13% vs 3%) CMI victims less likely to seek help from informal networks (x0.5) and more likely to seek help from health professionals (x3) 	NA
5	<ul style="list-style-type: none"> SMI patient survey (2011/13) & BCS (2011/12) SMI vs no SMI (secondary analysis: SMI vs CMI vs no mental illness) Past-year personal or household crime 	<p>Hypotheses:</p> <ul style="list-style-type: none"> Those with SMI at greater risk of personal or household crime than those without SMI Excess risk of violent victimisation accounted for by social deprivation, substance misuse and violence perpetration Health impact greater and disclosure less for SMI than non SMI vics 	<ul style="list-style-type: none"> Prevalence of any crime and violent crime among people with SMI 40% and 19% respectively Risk of any crime those with vs without SMI x3 Risk of violent crime in those with vs without SMI x5 (for women x12, for men x2) Risk for SMI 2-3 times higher than risk for CMI 	<ul style="list-style-type: none"> Psychological morbidity in SMI vs non SMI victims x3 SMI victims as likely to seek help from police but less satisfied with response 	<ul style="list-style-type: none"> Social deprivation, substance misuse and violence perpetration accounted for excess risk of any violence among men with SMI but not among women with SMI Social deprivation accounted for excess violence risk among men and women with CMI but not those with SMI

Ch	Survey, population, outcome	Aims / hypotheses	Findings : prevalence & risk; other findings	Findings : impact, reporting and risk factors	Findings : risk factors
6	<ul style="list-style-type: none"> SMI patient survey & BCS (2011/12) SMI vs no SMI Adulthood and past year domestic violence (DV) and sexual violence (SV) 	<p>Hypotheses:</p> <ul style="list-style-type: none"> Those with SMI at greater risk of DV & SV than those without SMI Family violence greater proportion of DV among SMI than SMI victims Health impact greater and disclosure less for SMI than non SMI sexual violence victims 	<ul style="list-style-type: none"> Prevalence of past-year DV in women and men with SMI 27% & 13%; prevalence of past-year SV in women with SMI 10% Risk of DV in x3 for SMI women; x2 for SMI men; risk of SV x3 for SMI women Family violence greater proportion of DV amongst those with vs without SMI (63% vs 35%) 	<ul style="list-style-type: none"> Suicide attempts greater among SMI than non-SMI victims of sexual violence (53 vs 3%) SMI victims of sexual violence as likely to disclose to informal network but more likely to disclose to health professionals and police 	<ul style="list-style-type: none"> Among people with SMI, women at greater risk of partner violence (x3) and sexual violence (x7) but same risk of family violence. Above gender patterns similar to general population
7	<ul style="list-style-type: none"> SMI patient survey Context and risk factors (RFs) for community violence (CV) and domestic violence (DV) 	<p>Aims:</p> <ul style="list-style-type: none"> Explore extent, location and perpetrators of violence against men and women with SMI Explore demographic, social, clinical and behavioural RFs for community & domestic violence 	<ul style="list-style-type: none"> Prevalence of CV 17% in SMI women and men; prevalence of DV 12% SMI women, 6% in SMI men SMI men mainly at risk from acquaintances and strangers in public places SMI women at risk from broader range of perpetrators mainly at home or in mental health facilities 	NA	<ul style="list-style-type: none"> RFs for CV & DV: substance misuse, violence preparation, younger age RFs for CV only: poor service engagement, recent admission, MHA admission RFs for DV only: female, poor social function, recent homelessness, child abuse, non-SZ diagnosis, early illness RFs for neither: SES, ethnicity

Key: , APMS- Adult Psychiatric Morbidity Survey , BCS- British Crime Survey, CMI- Chronic Mental Illness, DV- domestic violence, IPV- intimate partner violence, NA- not applicable, RFs- risk factors, SMI- severe mental illness, SZ-schizophrenia

8.2 Summary of key findings

I systematically reviewed and critiqued past studies on violence against people with severe mental illness, focusing on prevalence, relative odds and risk factors. The 26 studies identified by the systematic review indicated that around one in five people with SMI had been a victim of violence within the past year, with relative odds of two to fifteen-fold compared with the general population. Risk factors consistently associated with victimisation included homelessness, substance misuse and violence perpetration. The existing studies had several limitations. Most studies were opportunistic, addressing victimisation as a secondary question, so lacked detail on the nature, context and impact of victimisation. Few studies investigated victimisation by gender, and none reported separately on domestic and community violence. These are important limitations, since the appropriate interventions for violence prevention are likely to vary by victim gender and violence type.

I then conducted two groups of studies to address key gaps in the literature. The first group of studies investigated violence against people with self-reported disabling chronic mental illness using data from two nationally representative surveys; the Crime Survey for England and Wales (CSEW) and the Adult psychiatric Morbidity Survey (APMS). The second group of studies investigated violent and non-violent crime against people with SMI, using data from a newly conducted survey with 361 randomly-sampled patients under the care of psychiatric services in London. The patient survey used an identical measure of victimisation to that used in the national CSEW, enabling comparisons with national crime survey data.

It was hypothesised that

1. People with mental illness would be at increased risk of community and domestic violence compared to the general population; more so for women than for men
2. The excess risk of victimisation would be accounted for by social deprivation, substance misuse and violence perpetration
3. Victims with mental illness would be more likely to experience adverse psychosocial effects following victimisation than general population victims

4. Victims with mental illness would be less likely to report victimisation to the police than general population victims

The findings across the studies reported in this thesis are summarised below.

8.2.1 Prevalence of recent victimisation

Findings from secondary analyses of national data and the new patient survey indicated that past-year physical or sexual violence was experienced by around 30% of those with severe mental illness (SMI), 12% of those with self-reported chronic mental illness (CMI) and 5-7% of the general population (Table 5-7 & Table 3-4) . It was estimated that around 7% of all incidents of violence in England and Wales in 2009 could be attributed to the independent effect of disability (physical or mental), at an annual excess cost of £1.5 billion.

8.2.2 Relative odds of victimisation

After adjusting for socio-demographic differences, and compared to the general population, people with CMI had two to three-fold higher odds of being victims of any past-year violence (Table 3-4), whilst those with SMI had five to 12-fold higher odds (Table 5-8). Similar patterns of excess risk were found for the different subtypes of violence, whether sub-divided by perpetrator (domestic and community violence) or by the nature of violence (physical and sexual violence). (Table 5-7 & Table 3-4).

8.2.3 Gender and victimisation risk

In the general population, men are at greater risk of overall violence and community violence victimisation, whilst women are at greater risk of domestic and sexual violence victimisation. Past literature suggested that this 'gender' gap is narrower among people with mental illness, based on the finding that the prevalence of overall victimisation was similar in SMI men and women. However, there was insufficient evidence on the risk of different types of violence by gender, so it was unclear whether the narrowed gender gap applied to both domestic and community violence.

In the studies reported in this thesis, and among those with both CMI and SMI, women were at greater risk of domestic and sexual violence than men; with relative odds similar to those found in the general population. Therefore, there was no evidence for a narrowing of the gender gap for domestic and sexual violence. By contrast, for both CMI and SMI, men and women were equally likely to experience community violence, so there was evidence for a narrowing of the gender gap for this outcome.

In summary, among those with mental illness, women were more likely than men to experience domestic and sexual violence, as seen in the general population. They were as likely as men to experience community violence, losing the protective effect of female gender seen in the general population. This is reflected in the interaction between gender and victimisation risk, where the relative risk for women (around 11-fold for SMI women) was greater than for men (around 2-fold for SMI men).

The studies reported in this thesis also identified a gender difference in the factors accounting for the excess risk of victimisation. The contribution of social deprivation, substance misuse and violence perpetration to the excess risk of recent violence victimisation was explored among people with SMI for any victimisation (See Table 5-8) and for domestic violence victimisation (see table 6-2). These factors accounted for much of the excess risk among men with SMI, but not among women with SMI- who remained at substantially increased odds of all violence types after these factors were taken into account. One potential explanation for this is that mutual violence is a greater problem among men than among women with SMI. Another potential explanation relates to the perpetrators of violence against men and women with SMI; men were mainly victimised by strangers and acquaintances in public places, whilst women were victimised by a broad range of perpetrators (partners, family members, acquaintances, strangers, mental health service users and professionals)- mainly at home or in mental health facilities. Substance misuse and violence perpetration may account for conflict with strangers / acquaintances in public (as experienced by men) - but is unlikely to account for the broader contexts of violence experienced by women. These findings can be further explored in future qualitative studies.

The findings above have implications for policy and practice. They suggest the need to develop interventions for community violence against SMI women (whereas most interventions focus on young men), and to tailor interventions to gender-specific risk factors and contexts. Although SMI women were at greater risk of domestic and sexual violence than SMI men, the prevalence of these experiences among men with SMI is as high or higher than their prevalence against women in the general population- so both men and women victims need to be considered in interventions for these outcomes.

8.2.4 Impact and reporting of victimisation

Victims with pre-existing mental illness were more likely to experience adverse psychological and social effects as a result of violence incidents than general population victims. For example, compared to victims in the general population, victims with CMI were five times more likely to attempt suicide as a result of IPV (Table 4-4). Similarly, victims with SMI were ten times more likely to attempt suicide as a result of serious sexual assaults than general population victims. This suggests that people with mental illness are not only at increased risk of experiencing victimisation, but that they are more likely to be adversely affected by violence once victimised. This is important from an economic impact point of view, since the majority of the cost of violence is accounted for its emotional impact on victims. [137]

There was some difference in the pattern of reporting of victimisation between victims with and without mental illness. For example, victims with CMI were less likely to report IPV experiences to informal social networks but more likely to report them to health professionals than general population victims (table 4-5). Victims with SMI were more likely to report serious sexual assaults to the police and health professionals than victims without SMI. This suggests that health professionals can play a key role in detecting victimisation and addressing its adverse consequences among people with chronic and severe mental illness; and that they need to work collaboratively with other organisations (e.g. criminal justice agencies) in order to provide effective support.

8.2.5 Violence among people with SMI: risk factors and context

The risk factors and context (i.e. location, perpetrators, interpersonal context) of violence against people with SMI were investigated using quantitative and qualitative methods.

The quantitative analysis focused on risk factors for community and domestic violence. Both community and domestic violence were associated with violence perpetration. The co-occurrence of victimisation and perpetration has been highlighted in past literature- mainly in studies with perpetration by people with SMI as the primary outcome. A recent systematic review of 110 studies on violence perpetration among people with psychosis found that victimisation was associated with a six-fold increased risk of perpetrating violence. [75] Apart from a past history of aggression and substance misuse, victimisation was the strongest correlate of being violent in this population. The overlap between being a victim and perpetrator could be related to common underlying causes- for example childhood abuse or substance misuse- and / or to a pattern of interpersonal interactions characterised by conflict. [81] As in the general population, there will be subgroups of people who have a history of being only a victim, only a perpetrator or both- and they are likely to have different risk profiles. Silver et al investigated risk factors for violence among discharged psychiatric patients- and found that some factors were correlated with being both a victim and perpetrator (e.g. frequent residential moves, extent of symptoms, perceived stress, substance misuse) whilst others were correlated with being just a perpetrator (e.g. being young, Black and male) or just a victim (e.g. personality disorder). [35] [81] In the study reported in Chapter 5, violence perpetration and substance misuse were found to account for the excess risk of victimisation among men with SMI, but not among women with SMI. The association between being a victim and perpetrator in men has two possible explanations. The first is that men's violence towards others puts them at risk of being a victim. The second is that men respond to being a victim by being violent themselves (i.e. reverse causality). Regardless of the mechanism, these findings indicate that mutual violence is a greater problem among men than women. The co-occurrence of being a victim and perpetrator among some patients- and especially

among male patients- indicates the need to integrate interventions for these problems.

As well as identifying violence perpetration and substance misuse as common risk factors for domestic and community violence, the study reported in Chapter 6 identified some distinct risk factors for these violence subtypes. Community violence was uniquely associated with a number of clinical risk factors indicating recent illness severity (such as number of admissions, a history of MHA detention and poor engagement with services). Domestic violence was uniquely associated with female gender, childhood abuse, early illness onset and co-morbid personality disorder.. These findings were not based on a priori hypotheses, and need to be interpreted with caution. If replicated, they suggest the need for tailored interventions for community and domestic violence.[75]

The qualitative analysis focused on the perceived causes and interpersonal context of violence, from the perspective of victims with SMI. The analysis was initially conducted separately for incidents perpetrated by partners, family members, acquaintances and strangers, but it identified three common themes across the victim-perpetrator relationships:

- (a) Violence in the context of 'power imbalance', with patients being targeted by those in a position of control or power over them- including partners, acquaintance and mental health professionals;
- (b) 'Targeted violence', with violence targeted at the victims' personal attributes, including disability, race and sex, mainly by strangers or acquaintances
- (c) Violence in the context of 'mutual conflict', mainly precipitated by substance misuse or acute illness (in the victim, perpetrator or both).

8.2.6 CMI, SMI and victimisation

This study focused on victimisation among people with SMI, but also examined victimisation among those with self-reported disability due to chronic mental illness (CMI). One of the motivations for including the latter group was to examine how far they have a similar victimisation profile to people with SMI, versus the elevated risk being specific to a severely unwell group in secondary services.

In order to interpret the findings for those with SMI compared to those with chronic mental illness (CMI) it is worth noting the clinical characteristics of those with CMI (as suggested by data from the APMS survey): 8% have a psychotic illness and 80% have a common mental disorder (with 75% seeking mental healthcare from primary care and 20% from psychiatric services). Therefore there is some overlap between the two populations, but the majority of those with CMI have a common mental disorder and seek help from primary care only.

There was evidence that- compared to those without mental illness- those with CMI and SMI were at increased risk of victimisation, but with higher relative risk for those with SMI than CMI. Similarly, the psychological impact of victimisation was greater for both groups than for those without mental illness, but more so for those with SMI. The greater vulnerability of those with SMI persisted after taking into account socio-demographic differences. Given the limitations of the data for the CMI group (e.g. the absence of any clinical data or data on risk factors such as childhood abuse in the BCS) it is difficult to interpret the risk differences between the SMI and CMI groups. It is possible there is a dose response effect, with a milder elevation of risk among people with milder disorders. It is also possible there is a specific subgroup among the CMI population who have a similar risk profile to people with SMI in contact with secondary services. Finally, the excess risk among those with SMI may be related to some of the developmental or clinical risk factors identified in Chapter 7 (such as childhood abuse, acute severe illness or co-morbid personality disorder). Whatever the mechanism, the higher risk for those in contact with secondary mental health services suggests the need for targeted interventions in this group.

The implications of victimisation among those with CMI and SMI to policy and practice are discussed in section 8.6 below.

8.3 Key limitations

The studies conducted in this thesis had a number of limitations, which were discussed in detail in the relevant study chapters. Here, three key limitations of the patient survey are highlighted.

Firstly, the survey had a somewhat low response rate of 52%, and so the study sample may not have been representative of the target patient population. It is possible that non-participation was associated with the outcome of interest-hence biasing the prevalence estimates- although it is unclear whether people who had experienced violence were more or less likely to participate. For example, those with violence experiences may have participated more because the research topic was relevant to them. This would have resulted in an overestimate of the prevalence of victimisation. Conversely, those with a violence history may have participated less because they were worried about becoming distressed or about the consequences of disclosing violence. This would have resulted in an underestimate of the prevalence of victimisation. It is likely that both of these factors operated, decreasing the overall effect of non-participation bias.

Secondly, the patient survey and the general population survey were conducted by different research teams in different broader contexts, so the findings may not be directly comparable. The patient survey was conducted by clinicians or trained researchers in clinical settings, with the primary aim of assessing whether people with SMI were at increased risk of victimisation. The general population national crime survey was conducted by trained lay interviewers in people's homes, with the primary aim of assessing crime trends and contact with the criminal justice system. Estimates of violence prevalence are sensitive to survey questions and context. Whilst every effort was made to keep the patient survey as similar as possible to the national survey, and the victimisation questions used were identical, the different survey contexts may have influenced respondents' willingness to disclose victimisation experiences. It is possible that the context of the patient survey encouraged greater disclosure. This would have led to disclosure bias and an overestimate of the relative odds. The interviewers in the patient survey were not blind to the study hypothesis, and this may have led to ascertainment bias (again inflating relative odds). Nonetheless, the study's estimates of the relative odds are in line with past findings, and were robust across subgroups and sensitivity analyses.

Thirdly, the study was cross-sectional in nature. Many of the risk factors investigated had plausible bi-directional associations with victimisation (e.g. substance misuse, violence perpetration). The direction of causality could not be

established in this cross-sectional design. In addition, historical risk factors, such as childhood abuse, may have been affected by recall bias. These limitations are difficult to address, since alternative study designs are impractical. Cohorts starting in childhood include only a small number of people with SMI, since SMI has a low prevalence, and those who develop SMI are more likely to drop out of cohort studies. Cohorts starting in early or prodromal illness may be an attractive alternative. However, many of the relevant risk factors (such as acute illness, substance misuse and violence perpetration) are recurring, short-lived events, and are likely to both precede and follow victimisation incidents. It may therefore be more helpful to identify subgroups of patients with co-occurring experiences (e.g. those who experience only victimisation versus those who experience both victimisation and perpetration- or those who experience abuse only in adulthood versus those who experience it in both childhood and adulthood). The characteristics and modifiable risk factors associated with these subgroups can then be investigated.

The pathways linking childhood abuse, victimisation in adulthood and SMI are complex. Childhood abuse itself is a risk factor for a range of adulthood victimisation experiences, including sexual assaults and partner violence. [122, 210, 211] There is increasing evidence that childhood abuse is also a risk factor for the later development of psychotic disorders or symptoms. [84, 200, 201] It is unclear to what extent SMI itself contributes to the risk of recent victimisation, above and beyond the risk posed by early life adversity. In order to disentangle some of this complexity, future longitudinal research should investigate the adulthood correlates of childhood abuse among those with and without SMI.

Two other limitations are worth highlighting. The first is that both the general population survey and the patient survey only included people living in stable housing in the community- so excluded people who were homeless at the time of the study (although 10% of the patient survey respondents had been homeless within the preceding 2 years). As reported in the Chapter 2, homelessness is a key correlate of victimisation, and victimisation prevalence is highest among those who are homeless at the time of the study. [212] One study found that 97% of women with SMI and episodic homelessness had a lifetime history of victimisation- an experience so common as to be the norm for this population. [213] Homelessness is commoner

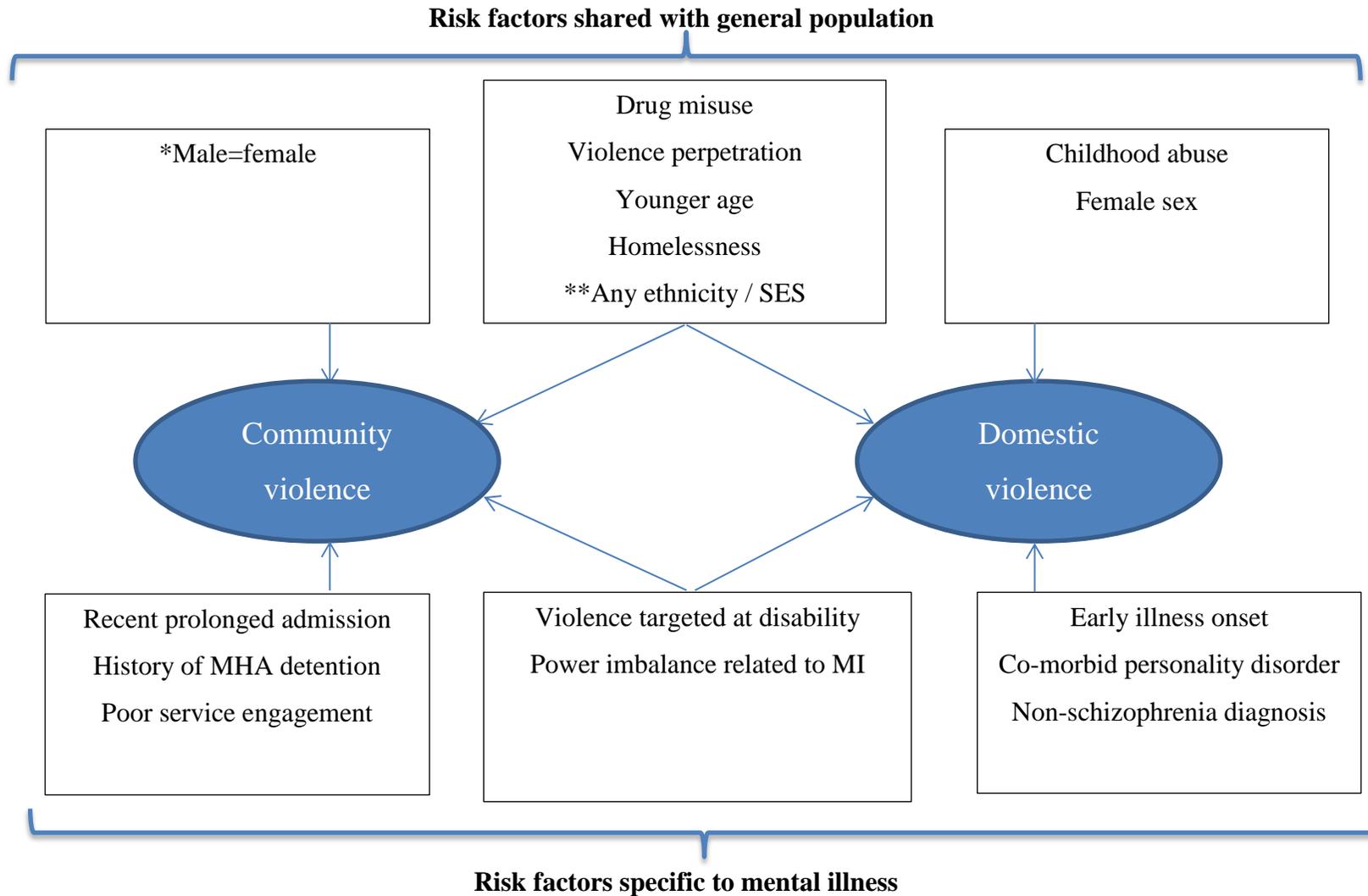
among people with SMI than the general population, and excluding those with current homelessness at the time of the study may have underestimated the relative risk of victimisation for people with SMI. In Chapter 5, recent homelessness (within past 2 years) was found to be associated with domestic violence but not community violence. The absence of any association with community violence may be due to housing stability over the preceding year (as all patients had to have been under CPA care for at least a year). The association with domestic violence may be explained by reverse causality-where previous domestic violence had led to homelessness. Future studies should investigate domestic violence as a trigger for homelessness in this population.

The other limitation of the studies reported in this thesis is that the contribution of cultural factors to victimisation risk could not be explored- beyond a crude analysis of the association between ethnicity and victimisation (where no association was found for any of the violence subtypes among men or women). The systematic review reported in Chapter 2 also found no association between ethnicity and victimisation risk. However, a lack of an association between overall victimisation prevalence and ethnicity does not preclude an important cultural contribution to victimisation in this population. Different cultures have different responses towards people with SMI- both within a family and in wider social networks- and this may be associated with differences in pathways to victimisation. There is little evidence on this in the literature, but would be important to explore in future studies.

8.4 An evidence-based conceptual framework

In Chapter 1, I outlined a conceptual framework for victimisation risk factors among people with SMI, on the basis of existing evidence and theory. I have updated this model in light of the findings of the systematic review and the studies reported in this thesis, as shown in Figure 8-1. This includes risk factors at the individual and interpersonal levels. The findings of distinct risk profiles for domestic and community violence are provisional and require validation in future research.

Figure 8-1 Evidence-based conceptual framework



* Higher risk for men than women in the general population
 ** Higher risk for ethnic minority and socially deprived in the general population

8.5 Implications for practice and policy

The research reported in this thesis has the following policy and clinical implications:

- A high proportion of people presenting to mental health services are victims of recent violence, and this is associated with significant psychosocial morbidity and economic cost. Therefore, national health and legal policies for violence victims need to prioritise mental healthcare settings. It is of note that current health victimisation policies focus on antenatal and emergency department settings, but not psychiatric settings [167, 175]; and that violence policies in psychiatric populations focus on violence perpetrated by rather than against psychiatric patients. [214]
- Mental health professionals need to routinely enquire about recent violence experiences, and provide appropriate support to those who disclose violence.
- Mental health professionals need to be aware of the risk profile for victimisation among their patients. Substance misuse and violence perpetration are risk factors for all forms of victimisation. There is emerging evidence that those with recent acute illness are at risk of community violence, whilst those with a history of childhood abuse, early illness onset and co-morbid personality disorder are at risk of domestic violence.
- Mental health professionals need to work collaboratively with third sector and criminal justice agencies to offer appropriate support to victims with mental illness.
- The interpersonal contexts of violence against people with SMI include violence targeted at people's disability, race or gender; and violence in the context of power imbalance. Therefore, policies and public health interventions that address stigma and social exclusion are needed to effectively address victimisation risk in this population.

Research reported in this thesis examined the epidemiology of victimisation among people with SMI (in terms of prevalence, relative odds, impact and risk profile). Future research needs to focus on interventions. In the following section, I discuss current evidence on interventions, and future directions.

8.6 Interventions: current evidence and future directions

8.6.1.1 Interventions within healthcare settings

This section focuses on interventions for victims of violence within mental healthcare settings. Within these settings, intervention would have the following aims: (a) to identify people who have been victims of violence (b) to make onward referrals for victims where is this needed and wanted; for example to advocacy services or the police (c) to provide appropriate support for victims within the mental healthcare setting itself; for example psychological interventions to address post-traumatic stress, interventions aimed at addressing risk factors for revictimisation such as substance misuse, and interventions aimed at helping patients maintain safer relationships. The ultimate aim of these interventions would be to decrease risk of re-victimisation and improve victims' health and quality of life. [91, 175, 215]

Detection of victimisation in psychiatric settings could be done via universal screening (where a standardised screening test is administered to all psychiatric patients), indicated screening (where high risk patients, such as those with a history of violence perpetration or substance misuse, would be screened) or routine enquiry (where all patients are asked about victimisation, but the manner of enquiry varies across patients and clinicians depending on the circumstances- for example whether they are being seen in A&E or in an outpatient clinic). [194] The appropriateness of a screening programme would be guided by national and international standards- such as the UK National Screening Committee (NSC) criteria. [216] Feder et al reviewed the evidence for screening for IPV in any healthcare settings, [217] and highlighted NSC criteria of greatest relevance to this problem, including the following (reproduced from the NSC website):

- (1) The condition should be an important health problem
- (2) There should be a simple, safe, precise and validated screening test

- (3) The test should be acceptable to the population
- (4) There should be an effective treatment or intervention for patients identified through early detection, with evidence of early treatment leading to better outcomes than late treatment
- (5) There should be evidence from high quality Randomised Controlled Trials that the screening programme is effective in reducing mortality or morbidity
- (6) There should be evidence that the complete screening programme (test, diagnostic procedures, treatment/ intervention) is clinically, socially and ethically acceptable to health professionals and the public
- (7) The benefit from the screening programme should outweigh the physical and psychological harm (caused by the test, diagnostic procedures and treatment)
- (8) The opportunity cost of the screening programme (including testing, diagnosis and treatment, administration, training and quality assurance) should be economically balanced in relation to expenditure on medical care as a whole (ie. value for money)[7]

There is some evidence on screening for violence victimisation in primary care, emergency departments (ED) and antenatal clinics- with a focus on intimate partner violence (IPV). [167, 175] In these settings, routine screening for IPV increases victim identification, and in some studies has been shown to increase referrals to specialist support agencies, [165, 218] but there is no evidence that it improves safety, health outcomes or quality of life for victims. [165, 215, 217-219] Universal screening is therefore not currently recommended in these settings. [218] [217]

There is more limited evidence relevant to screening in psychiatric settings. The studies reported in this thesis, and those identified in the systematic review, indicate that violence against psychiatric patients is highly prevalent and associated with significant psychosocial morbidity (condition 1). The risk is high for both men and women, and is not limited to domestic physical violence but also includes sexual violence and community violence. There are domestic violence screening tests which are validated in the general population, but in the psychiatric population a screening test which includes physical or sexual violence by any perpetrator may need to be developed and tested (criterion 2). There is evidence that mental health service users would find routine enquiry about domestic violence acceptable as long as it was conducted in a sensitive manner (criterion 3), but that mental health professionals currently lack the training and resources to do this (criterion 6). [163, 164] The evidence on effective interventions once victimisation is detected is

reviewed below (criterion 4). In a recent Cochrane systematic review that I conducted with colleagues, we did not identify any RCTs on detection of victimisation in psychiatric settings (criterion 5). [7] There is preliminary evidence from pilot data that a complex intervention within mental healthcare settings-which comprises training for health professionals, the introduction of a screening tool, and the integration of advocacy workers into mental healthcare teams-is effective at improving detection of domestic violence by mental health professionals, external referral and victim safety (criteria 4, 5)- with no evidence for harm (criterion 7). [166] This intervention needs to be tested in a full-scale trial. To my knowledge, there are no cost-effectiveness studies on screening for victimisation in this population (criterion 8).

There is limited evidence on interventions offered to victims within mental healthcare settings once violence is identified (criterion 4). [91, 167, 169] There is some evidence that individual psychological treatments (such as trauma-focused cognitive behaviour therapy) can reduce the adverse psychological consequences of trauma (e.g. PTSD symptoms) among people with a primary diagnosis of schizophrenia or bipolar disorder. [208] Therefore, it is important to enable access to psychological treatments for those who screen positive for trauma within mental healthcare settings. In the USA, RCTs which compared compulsory outpatient treatment with regular discharge following hospitalisation in high-risk patients incidentally found that compulsory treatment decreased rates of victimisation. [190] This decrease was associated with greater treatment adherence, less substance misuse and less violence perpetration [190]-key risk factors for victimisation. Arguably, it would be inappropriate or even unethical to recommend compulsory treatment with the primary aim of reducing victimisation, but interventions which aim to address key risk factors need to be trialled. As shown in Chapter 7, risk factors for community and domestic violence may be distinct, so interventions targeting the relevant factors could be developed and tested. For community violence, interventions could focus on optimising treatment adherence and safeguarding patients during acute illness episodes, whilst for domestic violence interventions could target the psychological and interpersonal consequences of childhood abuse, early illness onset and co-morbid substance misuse. This could

include a focus on better management of interpersonal, including sexual, relationships.

For domestic violence, it may be appropriate to use couple or family based therapy in some circumstances, following a careful assessment of potential harm. There is little evidence on the effectiveness of these therapies in reducing victimisation in the SMI population. In the general population, couple therapy is contraindicated in chronic, controlling DV- but there is evidence that it may be helpful in addressing low-level situational violence in some circumstances (e.g. where the couple are committed to staying together, and where the perpetrator agrees a no-harm contract that is carefully monitored by the therapist). [220] The added vulnerability of patients with SMI (e.g. dependence on carers) needs to be taken into account when considering couple therapy in this population. The study reported in chapter 6 found that a significant proportion of domestic violence in the SMI population was perpetrated by family members. This is likely to include long-standing family violence preceding the onset of mental illness (as evidenced by the strong association with childhood abuse), as well as illness-related conflict (for example, conflict related to acute psychotic symptoms). Where there are no serious safeguarding concerns, and where the patient is likely to have ongoing close contact with family, it may be appropriate to consider family therapy- although there is little evidence on its effectiveness in relation to victimisation. There is good evidence that family therapy improves clinical outcomes such as rates of relapse, hospitalisation and medication adherence in patients with schizophrenia, [221] and this may help to reduce illness-related conflict. Beyond formal couple and family therapy, patients may benefit from interventions aimed at helping them to maintain healthy, safe relationships- including sexual relationships and relationships within the family. These could build on evidence based advocacy / empowerment / safety planning domestic violence interventions in the general population, [91] but tailored to the needs of the SMI population.

As well as providing specialist psychological treatment, mental healthcare professionals are well-placed to co-ordinate a multi-professional response focussed on protecting vulnerable patients from further abuse or violence. In the UK, this is expected to be carried out within the 'Safeguarding Adults' framework. [223] There

is little evidence on whether current safeguarding procedures are effective at reducing re-victimisation and addressing its consequences among psychiatric patients. The interviews with mental health professionals conducted in the course of the patient survey asked about professionals' experiences of using safeguarding and other risk management procedures, and their perception of how effective these procedures were in protecting violence victims under their care. This data will be analysed in further planned research.

Therefore, there is limited evidence that complex interventions that include education and improved cross-agency working can improve detection of domestic violence and external referral, and that trauma-focused CBT can be helpful in addressing psychological consequences of violence. Future research should address key criteria for a violence victimisation screening programme in mental healthcare settings, including acceptability to patients and professionals, and the benefits, harms and cost-effectiveness of interventions for screen-positive patients.

Given the high prevalence and adverse impact of victimisation in the SMI population, and the differences in risk profile by gender and for different types of violence, it could be argued that all psychiatric patients should be routinely asked about recent victimisation. Nonetheless, it is useful for clinicians to be aware of who is at highest risk. In addition to the risk factors mentioned above, other risk indicators include the consequences of victimisation. In this study, it was shown that suicide was a common complication- with over half of sexual violence victims attempting suicide following this experience. Therefore, clinicians should consider screening for recent victimisation among those presenting with a suicide attempt.

The above discussion focused on people with SMI under psychiatric care. As shown in Chapters 3 and 4, people with self-reported disability due to chronic mental illness also have a high prevalence of victimisation- and are more vulnerable to victimisation and subsequent adverse effects than those with other disability types. As shown in Chapter 4, the majority of people with CMI are in contact with primary not secondary healthcare settings. Victims with CMI are more likely than victims without mental illness to disclose their experiences to a health professional, and less likely to disclose them to their informal networks, so they are more reliant on health

professionals for support. Current evidence does not support universal screening for IPV in primary care, but those with CMI are a high risk group. [194] It could be argued that clinicians should have a lower threshold for enquiring about victimisation in this population, especially in the presence of additional risk factors such as social deprivation or substance misuse. Feasible interventions in primary care settings include rapid access to advocacy workers [165] and a greater focus on victimisation within psychological services such as ‘IAPT’ (‘Increasing Access to Psychological Therapies’; a national UK programme for providing rapid access to effective psychological treatment in primary care).

8.6.1.2 Interventions outside mental healthcare settings

Victimisation in people with mental illness cannot be solely addressed within healthcare setting, but require broader community, social and criminal-justice based interventions.

In terms of social interventions, as discussed in Chapter 5, there was evidence that social deprivation largely accounted for the excess risk of violence victimisation among men with CMI- and interventions aimed at addressing social disadvantage may address their increased victimisation risk.

Social disadvantage did not account for the excess risk against people with SMI, where additional sociocultural factors specific to SMI may be relevant. As discussed in Chapter 7, the interpersonal context of violence against people with SMI includes stigmatising attitudes. . Therefore, interventions that aim to combat stigma and improve social inclusion should be trialled. In the UK, the recent ‘Time to Change’ campaign, which included several community-level interventions which aim to decrease stigma against people with mental illness, has been effective in improving attitudes towards people with mental illness, and reducing discrimination experienced by them. [222] The advantage of these broader interventions is that they can be effective for several key outcomes, such as employment, quality of life and victimisation risk. Victimisation was not measured as an outcome in the programme’s evaluation, but future research on stigma and social inclusion should do so.

In terms of the criminal justice system, this study showed that people with mental illness were as likely as those without mental illness to disclose victimisation to the police, but they were less likely to be satisfied with their experience. There is evidence that people with mental illness experience discrimination within the criminal justice system. [6] [18] [224] Key barriers to accessing justice include not being believed, being seen as unreliable witnesses and having their mental illness used against them in court. [6, 18] A recent study found that rape victims with mental illness were the least likely to progress through the criminal justice system. [49] There are numerous policies and guidance documents that aim to protect the legal and human rights of those with disability, including those with mental illness. For example, Crown Prosecution Service (CPS) guidance to prosecutors states that the credibility and reliability of witnesses with mental illness should be questioned only under the same circumstances as for other witnesses (e.g. in relation to inconsistencies and evasion) and not solely on the basis of a person's mental ill-health. [225] In addition, the police and courts are required to make reasonable adjustments, including special measures (such as giving evidence from behind a screen or via video-link, and assistance from Registered Intermediaries) to support vulnerable witnesses to give evidence. [225] However, these measures are often ignored in practice [18]. For example, MIND highlighted the inappropriate or insensitive disclosure of mental health problems in court as a problem that needed to be challenged. [226] [227] Psychiatrists who are asked to prepare reports for the court or the police need to be aware of the safeguards available to patients, and limit the scope of their reports accordingly.

The effective prevention of violence against people with mental illness requires interventions within and across multiple sectors (health, voluntary sector, social, criminal justice). So far, research has focused on effectiveness of interventions within psychiatric settings, or across psychiatric settings and voluntary sector organisation, but there is a need for a broader focus- including social and criminal justice interventions. There is also a need to ensure that the criminal justice system is implementing current legal safeguards and best practice guidance for those with mental illness.

8.7 Conclusion

The studies reported in this thesis tested the primary hypothesis that recent community and domestic violence would be more prevalent among those with mental illness than the general population. They tested the secondary hypotheses that victims with mental illness would be more likely to experience psychosocial adversity following victimisation, and less likely to report victimisation to professionals, than general population victims. Risk factors for different types of violence were explored using quantitative and qualitative methods. The first hypothesis was supported, with elevated victimisation odds of two to three-fold for people with self-reported chronic mental illness, and three to twelve-fold for people with SMI; with particularly high relative odds for women. Compared to general population victims, victims with SMI were more likely to attempt suicide and become socially isolated following victimisation, but they were equally or more likely to report victimisation to professionals. There is preliminary evidence that risk profiles for community and domestic violence are distinct, and that targeted violence and power imbalance are important interpersonal contexts for violence against people with SMI.

These findings have implications for practice, in that mental health professionals need to routinely enquire about victimisation experiences, and work collaboratively with other agencies to support those who disclose violence. The findings on risk factors provide an evidence base on who among psychiatric patients is most at risk, and suggest targets for intervention research. The findings have implications for health and legal victimisation policies, in that these policies need to prioritise people treated within mental healthcare settings (in addition to their current focus on emergency department and antenatal settings). The current evidence base on interventions aimed at improving detection by mental healthcare professionals, supporting victims and preventing (re)victimisation is limited and needs to be the focus of future research.

Appendix

This Appendix includes the following:

- A copy of the Patient Survey 'Patient Information Sheet'
- A copy of the Patient Survey 'Consent Form'
- A summary of the media coverage of the 'Mental Health and Justice Project' (which comprised the Patient Survey reported in this thesis, and a qualitative study conducted by Victim Support). [6]

Please note that a copy of the questionnaires used in the Patient Survey is provided in the enclosed CD-ROM.

Patient survey: Patient Information Sheet



PARTICIPANT INFORMATION SHEET: Survey (V2, 1/6/2011)

Mental Health and Justice: Making it a Reality

You are being invited to take part in a research study. Before you decide whether you wish to take part, it is important for you to understand why the research is being done and what taking part will involve. Please take time to read the following information carefully and discuss it with others if you wish. *Please ask the investigator any questions you may have about the study.* Take time to decide whether or not you wish to take part.

Part 1 tells you the purpose of the study and what will happen to you if you take part.

Part 2 gives you more detailed information about the conduct of the study.

Thank you for reading this.

PART 1

What is the purpose of the study?

We are investigating the amount and type of crimes that people with mental health problems experience, whether there are any groups of people with mental health problems who are more at risk of particular types of crime. In addition we are exploring if there are particular factors that help or hinder people with mental health problems accessing justice after they have been victims of crime.

These are important areas for investigation because answers to these questions can help voluntary, community and government agencies plan to improve their support or services for victims of crime with mental health problems.

Who is arranging and funding the research study?

This research is being carried out by Victim Support (the national victims' charity), the mental health charity Mind, the Institute of Psychiatry, University College London and St George's University of London & Kingston University. Research Funding for this study is from the Big Lottery Fund Research Programme and the Medical Research Council.

What does taking part involve?

If you decide to take part, our researcher will arrange to meet you at a time of your choosing and ask you questions in a structured interview that will last approximately 1-2 hours. Of course you can have a break or stop the interview at any time if you wish. You will be asked about your health and social circumstances, about whether or not you have been affected by crime, about any experiences you have had with the police and the courts, about any experience of mental distress you may have had and about other life events. Your responses to all questions will be recorded in a manner designed to ensure that you cannot be recognised from them.

The researcher will also ask for your written consent to look at your clinical notes and speak to a mental health professional from your team, to get information about your mental health and any physical injuries you may have suffered as a result of your experiences. This part of the study is optional, so you can still take part in the study interview if you did not want the researcher to do this.

The data you provide will remain confidential but may be looked at by other individuals from the research team, sponsor, from regulatory authorities or from the NHS trust, where it is relevant to you taking part in this research. Information you provide will only be shared with an appropriate professional (i.e. mental health professional within your care team) if it suggests that a vulnerable child or adult (including yourself) may be at serious risk of suffering harm.

Do I have to take part in this study?

No. It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep and you will be asked to sign a consent form. You will also be given a copy of the signed consent form. If you decide to take part you are:

- Still free to withdraw at any time and without giving a reason.
- You need not answer questions that you do not wish to.

Your decision either way will not affect your support, care or treatment from the NHS or mental health service.

Are there any risks involved in taking part?

There are no obvious risks involved in this study. However, at times people may feel distressed as a result of remembering any bad experiences they have had in the past due to the personal nature of some of the questions they will be asked relating to possible past experiences of crime, sensitive questions on alcohol and drug use, personal relationships and traumatic life events.

We will ensure that any distress caused by this study is addressed appropriately. Interviewers will make every effort to lessen any discomfort in discussing these issues and should you become distressed then the interviewer will pause, be sympathetic and check if you wish to discontinue the interview. Trained staff from Victim Support will be on hand to support you and you will also be encouraged to speak to your key professional and will be provided with contact information on additional key support agencies should you wish to seek additional support.

Are there any benefits to taking part?

You may not benefit from this study directly yourself as the study aims to obtain the information necessary to help future victims of crime through improving their justice journeys. However, as discussed above, you will be given the opportunity to share your experiences with the researchers from Victim Support who can also refer you to further appropriate agencies and you will also be offered to receive a summary of the research results and will be invited to any presentations of the findings.

This completes part1.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

PART 2

Why have I been invited to take part?

A random sample of adults aged 18-65 registered as being in contact with the Camden and Islington (CANDI) NHS Foundation trust are being invited to take part in this study.

When and where will the research take place?

Interviews will take place at a local NHS mental health centre at a time that suits you.

Will my travel expenses be paid for me?

Yes, your travel expenses will be paid at the conclusion of the interview.

Will I be paid for taking part in this study?

Yes, you will receive £20 in compensation for any travel expenses and the inconvenience of attending at the conclusion of the interview.

Please check your position regarding these payments and if/how they may affect any benefits you may be receiving.

Will anyone else be told about my participation in this study?

We will ask if you wish your general practitioner to be informed.

Confidentiality

All information that is collected about you during the course of the research will be kept strictly confidential. Any information about you will be anonymised so that you cannot be recognised from it.

In the event that any of the information you share with us suggests that a vulnerable adult or child is suffering neglect or abuse then the researcher has the responsibility to share that information with the appropriate professional.

How will I be informed of the results of the research study?

You will be asked if you wish to receive a summary report of the research results and invitations to any events and presentations of the findings.

What if I wish to complain about the way in which this study has been conducted?

If you have any cause to complain about any aspect of the way in which you have been approached or treated during this study you can contact Professor S Johnson, via:

Bernadette Courtney (Administrative Officer), Department of Mental Health Sciences, Charles Bell House, 67-73 Riding House St, London W1W 7EJ;
Tel 02076799467

Who has reviewed this study?

This study has been reviewed and given a favourable opinion by Kent Research Ethics Committee.

Who do I contact for further information?

For further information about this study, please contact: Dr Hind Khalifeh, Department of Mental Health Sciences, Charles Bell House, Riding House St, London W1W 7EJ; Mobile: 07789615753 ; email: h.khalifeh@ucl.ac.uk

Patient survey: Consent form



CONSENT FORM: Survey (V3, 2/12/2011)

Title of Project: Mental Health and Justice: Making it a Reality

Name of Researcher:

Unique Participant ID: _____

Please initial line

1. I confirm that I have read and understand the information sheet dated 02/12/2011 (version 3) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. _____
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. _____
3. I understand that the research data collected during the study may be looked at by other individuals from the research team, sponsor, from regulatory authorities or from the NHS trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data. _____
4. I agree to taking part in the above study. _____
5. I give permission for the use of direct quotes from what I have said and understand that these quotes will be anonymous Yes/No: _____
6. I agree to the use of audio taping of the interview. Yes/No: _____
7. I also agree for the researchers to access my clinical records (mental health service and GP records): Yes/No: _____
8. I agree for the researchers to interview a mental health professional from my team: Yes/No: _____
9. I agree to my general practitioner being informed of my participation in this research: Yes/No: _____

Name of participant

Date

Signature

Name of person taking consent

Date

Signature

(when completed: 1 for participant; 1 for researcher site file; 1 to be kept with clinical notes)

Summary of media coverage

Summary of media coverage of 'At Risk, Yet Dismissed: the criminal victimisation of people with mental health problems' (prepared by Victim Support for end of grant report)

National and Local press

- BBC News, BBC News, 07/10/2013, 15:38:40, 2:25, including interview with Lydia. <http://www.bbc.co.uk/news/health-24427900>
- BBC Website: 'crime victims with mental illness ignored new research suggests' <http://www.bbc.co.uk/news/uk-24420430>
- Radio: BBC Radio4, BBC Radio5, BBC Radio Manchester (Paul at 7.05am), BBC Radio Newcastle (Paul farmer at 1pm), BBC Radio Essex, BBC London 94.9 (our Vicki Nash at 5.10pm), LBC at breakfast (8.30am) and later at about 2pm.
- ITV: mentally ill let down by police 07/10/2013 [ITV](http://www.itv.com/news/london/2013-10-07/mental-health-report-findings/),
- ITV London 07/10/2013, 18:06:37, 5:0 <http://www.itv.com/news/london/2013-10-07/mental-health-report-findings/>
- Independent: women with severe mental illness face high risk of attack <http://www.bbc.co.uk/news/uk-24420430>
- Sun:
- A different Guardian mention: <http://www.theguardian.com/science/political-science/2013/oct/07/tesco-halloween-costume-mental-health-scientists>
- Mirror: 'mentally ill women are ten times more likely to be a victim of crime' [Mirror](http://www.mirror.co.uk/news/uk-24420430),
- People with mental illness 'deserve equal justice' - The Times (Ireland), 07/10/2013, p.4, Unattributed
- Crime victims with mental illness ignored, research suggests UK Wired News (Web), 07/10/2013, Unattributed <http://www.ukwirednews.com/news.php/1513557-Crime-victims-with-mental-illness-ignored-research-suggests>
- Mentally ill's plight highlighted Crosby Herald (Web), 07/10/2013, Crosby Herald <http://www.crosbyherald.co.uk/news/crosby-breaking-news/2013/10/07/mentally-ill-s-plight-highlighted-68459-33923551/>
- People With Mental Health Issues More Likely To Become Victims Of Crime Build Scotland.co.uk (Web), 07/10/2013, Unattributed http://www.buildscotland.co.uk/national_news.asp?newsid=170107
- Breaking News: Mentally ill's plight highlighted Ormskirk and Skelmersdale Advertiser (Web), 07/10/2013, Unattributed <http://www.osadvertiser.co.uk/news/west-lancashire-breaking-news/2013/10/07/mentally-ill-s-plight-highlighted-80904-33923541/>
- Crime victims with mental illness fearful of disclosing experiences to professionals, Community Care <http://www.communitycare.co.uk/blogs/mental-health/2013/10/crime-victims-with-serious-mental-illness-fearful-of-disclosing-to-mental-health-professionals/?cmpid=NLC|SCSC|SCDDB-2013-1007>
- Mentally ill 'more likely' to report bad police behaviour, ITV website <http://www.itv.com/news/update/2013-10-07/mentally-ill-more-likely-to-report-bad-police-behaviour/>
- Crimeline: <http://www.crimeline.info/news/at-risk-yet-dismissed>
- <http://www.sutton1in4.org.uk/pages/in-the-news.php> -
- <http://www.powysmentalhealth.org.uk/news/national.html>
- <http://www.womensgrid.org.uk/news/?p=2283>

- <http://phys.org/news/2013-10-people-mental-health-problems-high.html>
- http://www.mentalhealthtoday.co.uk/people_with_mental_ill_health_10_times_more_likely_to_be_victims_of_crime_research_finds.aspx
- http://www.cambstimes.co.uk/news/police_crime_commissioner_urges_joint_approach_to_mental_health_1_2875586 Cambridgeshire PCC talking about working together more.
- <http://www.express.co.uk/news/uk/434945/Mentally-ill-s-plight-highlighted>
- Medical News Today <http://www.medicalnewstoday.com/releases/267092.php>
- http://www.newshopper.co.uk/news/10721183.Police_disrespecting_mentally_ill_crime_victims_report_says/

Public policy responses:

http://www.apccs.police.uk/fileUploads/one_year_on/Mental_Health_Speech_APPC_One_Year_On.pdf - Martyn Underhill speech at Association of Police and Crime Commissioners.

<http://www.theyworkforyou.com/whall/?id=2013-11-28a.139.-> reference to Home affairs select committee report

citation in hansard:

<http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131128/halltext/131128h0001.htm>

International press:

<http://www.capitalbay.com/news/394663-mentally-ill-women-are-10-times-more-likely-to-be-a-victim-of-crime.html> - usa

<http://smartjustice.ca/2013/10/08/fight-clubs-in-max/> - Canada

http://voiceofrussia.com/2013_10_07/Mentally-ill-victims-of-crime-neglected-research-9969/ - BBC Russia

Blogs and other websites :

<http://samedifference1.com/2013/10/07/mentally-ill-people-three-times-more-likely-to-experience-crime-finds-study/>

http://www.gulbenkianmhplatform.com/conteudos/00/61/00/01/Truth-versus-myth_2609.pdf

<http://www.no-offence.org/showthread.php/8400-A-Strategy-for-Women-%E2%80%93-A-journey-less-travelled>

<http://www.professionalsecurity.co.uk/news/health/mentally-ill-more-likely-to-be-repeat-victims-of-crime/>

<http://www.rethink.org/news-views/2013/10/thorpe-park-an-open-letter>

<http://urbantimes.co/2013/10/the-sun-and-its-headlines-are-a-symptom-of-a-wider-failure-on-mental-illness/>

<http://www.volition.org.uk/at-risk-yet-dismissed-report/>

<http://blogs.hud.ac.uk/academics/blog/2013/10/10/crime-victims-with-mental-illness-ignored/> - academic blog

<http://www.swainandco.com/mental-health/research-suggests-crime-victims-mental-health-issues-ignored/> - solicitor blog

<http://gordonjohnston.wordpress.com/2013/10/07/crime-and-mental-illness-the-reality/> - blog by someone with bipolar.

<http://www.sisnm.co.uk/latest-news/> -self help network

<http://www.mentalhealthforum.net/forum/thread72301.html> - discussion of personal stories on the forum

<http://www.katherinegoodsell.co.uk/blog/crime-victims-with-mental-illness-ignored> - blog from psychologist

<http://www.tavinstitute.org/infographics/at-risk-yet-dismissed-a-visualisation-of-vulnerability-and-stigma-towards-people-with-mental-health-issues/>

<http://sectioneduk.wordpress.com/resources/mental-health-reports-and-documents/>

<http://www.ncompassnorthwest.co.uk/news-events/?ID=241>

http://www.4ni.co.uk/northern_ireland_news.asp?id=170107

https://www.policeoracle.com/news/Race+and+Diversity/2013/Oct/08/Mental-health-victims-blamed-for-crimes_71953.html - police oracle

<http://thejusticegap.com/2013/10/mental-illness-sufferers-likely-victims-crime/>

http://www.counselling-directory.org.uk/blog/2013/10/10/crime-victims-with-a-mental-illness-disbelieved-and-ignored-finds-study/?utm_source=rss&utm_medium=rss&utm_campaign=crime-victims-with-a-mental-illness-disbelieved-and-ignored-finds-study

<http://www.able2uk.com/news/disabilities/police-neglect-mental-health-victims.html>

<http://www.wordonhealth.com/news-article.php?id=258>

References

1. Heise, L.L., *Violence Against Women: An Integrated, Ecological Framework*. *Violence against Women*, 1998. **4**(3): p. 262-290.
2. Khalifeh, H., et al., *Violence against People with Disability in England and Wales: Findings from a National Cross-Sectional Survey*. *PLOS One*, 2013. **8**(2): p. e55952.
3. Khalifeh, H., et al., *Violent and non-violent crime against adults with severe mental illness*. *British Journal of Psychiatry*, In press.
4. Khalifeh, H., et al., *Domestic and sexual violence against patients with severe mental illness*. *Psychological Medicine*, 2014. **FirstView**: p. 1-12.
5. Khalifeh, H., et al., *Recent intimate partner violence among people with chronic mental illness: findings from a national cross-sectional survey*. *British Journal of Psychiatry*, In press.
6. Pettit, B., et al., *At risk yet dismissed: the criminal victimisation of people with mental health problems*. 2013, London: Victim Support.
7. Borschmann, R., et al., *Screening programmes for helping mental health professionals to detect violent victimisation in people with severe mental illness (Protocol)*. *Cochrane Database Syst Rev*, 2013(3).
8. Institute of Psychiatry. 2014 [cited 2014 7/7/2014].
9. Choe, J.Y., L.A. Teplin, and K.M. Abram, *Perpetration of violence, violent victimization, and severe mental illness: Balancing public health concerns*. *Psychiatric Services*, 2008. **59**(2): p. 153-164.
10. Hiday, V.A., et al., *Victimization: a link between mental illness and violence?.[Erratum appears in Int J Law Psychiatry.2002 Sep-Oct;25(5):533-6.]*. *International Journal of Law & Psychiatry*, 2001. **24**(6): p. 559-72.
11. Hughes, K., et al., *Prevalence and risk of violence against adults with disabilities: a systematic review and meta-analysis of observational studies*. *The Lancet*, 2012. **379**(9826): p. 1621-1629.
12. Royal College of Psychiatrists, *Rethinking risk to others in mental health services*. 2008, London: Royal College of Psychiatrists.
13. Link, B.G., et al., *Public conceptions of mental illness: Labels, causes, dangerousness, and social distance*. *American Journal of Public Health*, 1999. **89**(9): p. 1328-1333.
14. Maniglio, R., *Severe mental illness and criminal victimization: a systematic review*. *Acta Psychiatrica Scandinavica*, 2009. **119**(3): p. 180-191.
15. Teplin, L.A., et al., *Crime victimization in adults with severe mental illness - Comparison with the national crime victimization survey*. *Archives of General Psychiatry*, 2005. **62**(8): p. 911-921.
16. Krug, E.G., *World Report on Violence and Health*. 2002, World Health Organization: Geneva.
17. Marge, D.K., *Call to action: ending crimes of violence against children and adults with disabilities*. National Conference on Preventing and Intervening in Violence Against Children and Adults with Disabilities, ed. D.K. Marge. 2003, Syracuse, NY: Upstate Medical University.
18. MIND, *Another assault: Mind's campaign for equal access to justice for people with mental health problems*. 2007, London: Mind.

19. World Health Organization, *World Report on Disability*. 2011, Geneva: World Health Organization.
20. United Nations, *Convention on the Rights of Persons with Disabilities*. 2006.
21. Hsu, C.C., et al., *Crime victimization of persons with severe mental illness in Taiwan*. Australian and New Zealand Journal of Psychiatry, 2009. **43**(5): p. 460-466.
22. Silver, E., *Mental disorder and violent victimization: The mediating role of involvement in conflicted social relationships*. Criminology, 2002. **40**(1): p. 191-212.
23. Sturup, J., et al., *Violent victimisation of psychiatric patients: a Swedish case-control study*. Social Psychiatry and Psychiatric Epidemiology, 2011. **46**(1): p. 29-34.
24. TNS-BMRB, *The British Crime Survey 2009-10 Technical Report*. 2010, London: TNS-BMRB.
25. van Wilsem, J., *Criminal Victimization in Cross-National Perspective*, in *European Journal of Criminology*. 2004. p. 89-109.
26. United Nations, *Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power*. 1985, UN: Geneva.
27. Charlwood, P., et al., *Health Outcome Indicators: Severe Mental Illness. Report of a working group to the Department of Health*. 1999, Oxford: National Centre for Health Outcomes Development.
28. World Health Organization, *Interantional Classification of Functioning, Disability and Health (ICF)*. 2001, Geneva: World Health Organization.
29. United Nations, *Convention on the Rights of Persons with Disabilities. Resolution 61/106*. 2008, New York: United Nations.
30. White, C., *Update on the harmonisation of disability data collection in UK surveys (part 1)*. Health Stat Q, 2011(51): p. 3-30.
31. Hiday, V.A., et al., *Criminal victimization of persons with severe mental illness*. Psychiatric Services, 1999. **50**: p. 62-68.
32. Hodgins, S., et al., *Aggressive behaviour, victimisation and crime among severely mentally ill patients requiring hospitalisation*. British Journal of Psychiatry, 2007. **191**: p. 343-350.
33. Schomerus, G., et al., *Urban residence, victimhood and the appraisal of personal safety in people with schizophrenia: results from the European Schizophrenia Cohort (EuroSC)*. Psychological Medicine, 2008. **38**(4): p. 591-597.
34. Warner, R., et al., *The quality of life of people with schizophrenia in Boulder, Colorado, and Bologna, Italy*. Schizophrenia Bulletin, 1998. **24**(4): p. 559-568.
35. Silver, E., et al., *Assessing the Violent Offending and Violent Victimization Overlap Among Discharged Psychiatric Patients*. Law and Human Behavior, 2011. **35**(1): p. 49-59.
36. Hodgins, S., et al., *Aggressive behaviour, victimization and crime among severely mentally ill patients requiring hospitalisation*. British Journal of Psychiatry, 2007. **191**: p. 343-50.
37. Hodgins, S., T. Lincoln, and T. Mak, *Experiences of victimisation and depression are associated with community functioning among men with schizophrenia*. Social Psychiatry and Psychiatric Epidemiology, 2009. **44**(6): p. 448-457.

38. Bureau of Justice Statistics.
[http://www.bjs.gov/index.cfm?ty=dcdetail&iid=245#Publications and products](http://www.bjs.gov/index.cfm?ty=dcdetail&iid=245#Publications_and_products). [cited 2014 1/4/2014].
39. Chaplin, R., J. Flatley, and K. Smith, *Crime in England and Wales 2010/11: Findings from the British Crime Survey and police recorded crime* 2ed. 2011, London: Home Office.
40. Kesteren, J.v., J.v. Dijk, and P. Mayhew, *The International Crime Victims Surveys: A retrospective*. International Review of Victimology, 2014. **20**(1): p. 49-69.
41. Van Dijk, J., J. van Kesteren, and P. Smit, eds. *Criminal Victimization in International Perspective, Key findings from the 2004-2005 ICVS and EU ICS*. 2008, Boom Legal Publishers: The Hague.
42. National Statistician, *National Statistician's review of crime statistics: England and Wales* 2011, London: Government Statistical Service.
43. Centers for Disease Control and Prevention. *The National Intimate Partner and Sexual Violence Survey*. [cited 2014 7/4/2014]; Available from: <http://www.cdc.gov/violenceprevention/nisvs/index.html>.
44. Australian Bureau of Statistics. *Directory of Family and Domestic Violence Statistics*. 2013 [cited 2014 7/4/2014]; Available from: <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4533.0Main+Features502013>.
45. World Health Organization, *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. 2013, Geneva: WHO.
46. Mihalic, S. and D. Elliott, *If Violence Is Domestic, Does It Really Count?* Journal of Family Violence, 1997. **12**(3): p. 293-311.
47. Ellsberg, M. and L. Heise, *Bearing witness: ethics in domestic violence research*. Lancet, 2002. **359**(9317): p. 1599-1604.
48. Walby, S. and J. Allen, *Domestic violence, sexual assault and stalking: Findings from the British Crime Survey*. 2004, Home Office: London.
49. Hester, M., *From Report to Court: Rape cases and the criminal justice system in the North East*. 2013, Bristol: University of Bristol in association with Northern Rock Foundation.
50. Goodman, L.A., et al., *Reliability of reports of violent victimization and posttraumatic stress disorder among men and women with serious mental illness*. Journal of Traumatic Stress, 1999. **12**(4): p. 587-599.
51. Fisher, H.L., et al., *Reliability and Comparability of Psychosis Patients' Retrospective Reports of Childhood Abuse*. Schizophrenia Bulletin, 2011. **37**(3): p. 546-553.
52. Hiday, V.A., *The Social-Context of Mental-Illness and Violence*. Journal of Health and Social Behavior, 1995. **36**(2): p. 122-137.
53. Kawachi, I., B.P. Kennedy, and R.G. Wilkinson, *Crime: social disorganization and relative deprivation*. Social Science & Medicine, 1999. **48**(6): p. 719-731.
54. Fonagy, P., *Male Perpetrators of Violence Against Women: An Attachment Theory Perspective*. Journal of Applied Psychoanalytic Studies, 1999. **1**(1): p. 7-27.
55. Silver, E., *Understanding the relationship between mental disorder and violence: The need for a criminological perspective*. Law and Human Behavior, 2006. **30**(6): p. 685-706.

56. Bhakta, S.G., J.P. Zhang, and A.K. Malhotra, *The COMT Met158 allele and violence in schizophrenia: A meta-analysis*. Schizophrenia Research, 2012. **140**(1-3): p. 192-197.
57. Willman, A. and M. Makisaka, *World Development Report: Interpersonal violence prevention-a review of the evidence and emerging lessons*. 2010, Washington D.C.: World Bank.
58. World Health Organization, *Violence prevention: the evidence (Overview)*. 2010, Geneva: World Health Organization.
59. World Health Organization, *Preventing violence: A guide to implementing the recommendations of the World report on violence and health*. 2004, Geneva: WHO.
60. Rutherford, A., et al., *Violence: a priority for public health? (part 2)*. Journal of Epidemiology and Community Health, 2007. **61**(9): p. 764-770.
61. Sampson, R.J. and W.B. Groves, *Community Structure and Crime - Testing Social-Disorganization Theory*. American Journal of Sociology, 1989. **94**(4): p. 774-802.
62. Sampson, R.J. and J.H. Laub, *A Life-Course View of the Development of Crime*. 2005. p. 12-45.
63. Goldstein, P.J., *The drugs/violence nexus: a tripartite conceptual framework*. Journal of Durg Issues, 1985. **15**(4): p. 493-506.
64. Kellermann, A.L. and J.A. Mercy, *MEN, WOMEN, AND MURDER: GENDER-SPECIFIC DIFFERENCES IN RATES OF FATAL VIOLENCE AND VICTIMIZATION*. Journal of Trauma and Acute Care Surgery, 1992. **33**(1): p. 1-5.
65. Moffitt, T.E., et al., *Whole blood serotonin relates to violence in an epidemiological study*. Biol Psychiatry, 1998. **43**(6): p. 446-57.
66. Bandura, A., *Aggression: A social learning analysis*. 1973, Oxford, England: Prentice-Hall. ix, 390.
67. Smith, K., et al., *Homicides, Firearm Offences and Intimate Violence 2010/11: Supplementary Volume 2 to Crime in England and Wales 2010/11*. 2012, London: Home Office.
68. Khalifeh, H. and K. Dean, *Gender and violence against people with severe mental illness*. International review of psychiatry, 2010. **22**(5): p. 535-46.
69. Bhugra, D. and J. Leff, *Principles of social psychiatry*. 1993, Oxford: Blackwell Scientific Publications.
70. Goffman, I., *Stigma: Notes on the management of a spoiled identity*. 1963, New Jersey: Prentice-Hall Inc.
71. Link, B. and J. Phelan, *Conceptualizing Stigma*. Annual review of sociology, 2001. **27**(1): p. 363-385.
72. Thornicroft, G., et al., *Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey*. The Lancet, 2009. **373**(9661): p. 408-415.
73. The Law Commission. *Hate crime*. 2014 [cited 2014 12/3/2014]; Available from: http://lawcommission.justice.gov.uk/areas/hate_crime.htm.
74. Henderson, C., et al., *England's time to change antistigma campaign: one-year outcomes of service user-rated experiences of discrimination*. Psychiatric Services. **63**(5): p. 451-457.
75. Witt, K., R. van Dorn, and S. Fazel, *Risk factors for violence in psychosis: systematic review and meta-regression analysis of 110 studies*. PLoS ONE, 2013. **8**(2): p. e55942-e55942.

76. Fazel, S., et al., *Schizophrenia and Violence: Systematic Review and Meta-Analysis*. PLoS Med, 2009. **6**(8): p. e1000120.
77. Link, B.G., A. Stueve, and J. Phelan, *Psychotic symptoms and violent behaviors: probing the components of "threat/control-override" symptoms*. Social Psychiatry and Psychiatric Epidemiology, 1998. **33**: p. S55-S60.
78. Swanson, J.W., et al., *Alternative pathways to violence in persons with schizophrenia: The role of childhood antisocial behavior problems*. Law and Human Behavior, 2008. **32**(3): p. 228-240.
79. Monahan, J., *Rethinking risk assessment : the MacArthur study of mental disorder and violence*. 2001.
80. Fazel, S., et al., *Use of risk assessment instruments to predict violence and antisocial behaviour in 73 samples involving 24 827 people: systematic review and meta-analysis*. BMJ. British medical journal, 2012. **345**(24): p. e4692-e4692.
81. Hiday, V.A., *Understanding the connection between mental illness and violence*. International Journal of Law and Psychiatry, 1997. **20**(4): p. 399-417.
82. Messman-Moore, T.L. and P.J. Long, *The role of childhood sexual abuse sequelae in the sexual revictimization of women: An empirical review and theoretical reformulation*. Clinical Psychology Review, 2003. **23**(4): p. 537-571.
83. Widom, C.S., S.J. Czaja, and M.A. Dutton, *Childhood victimization and lifetime revictimization*. Child Abuse & Neglect, 2008. **32**(8): p. 785-796.
84. Varese, F., et al., *Childhood Adversities Increase the Risk of Psychosis: A Meta-analysis of Patient-Control, Prospective- and Cross-sectional Cohort Studies*. 2012.
85. Garcia-Moreno, C., et al., *Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence*. Lancet, 2006. **368**(9543): p. 1260-1269.
86. Abramsky, T., et al., *What factors are associated with recent intimate partner violence? findings from the WHO multi-country study on women's health and domestic violence*. BMC public health, 2011. **11**: p. 109.
87. Oram, S., et al., *Prevalence of experiences of domestic violence among psychiatric patients: systematic review*. The British Journal of Psychiatry, 2013. **202**(2): p. 94-99.
88. Trevillion, K., et al., *Experiences of Domestic Violence and Mental Disorders: A Systematic Review and Meta-Analysis*. PLoS ONE, 2012. **7**(12): p. e51740.
89. Khalifeh, H. and H. Khalifeh, *Violence against people with severe mental illness in Europe*. Acta Psychiatrica Scandinavica, 2009. **119**(5): p. 414; author reply 415.
90. Danielson, K.K., et al., *Comorbidity between abuse of an adult and DSM-III-R mental disorders: Evidence from an epidemiological study*. American Journal of Psychiatry, 1998. **155**(1): p. 131-133.
91. World Health Organization, *Responding to intimate partner and sexual violence against women: WHO clinical and policy guidelines*. 2013, Geneva: WHO.
92. Vandenberg, J., et al., *Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration*. PLoS Medicine, 2007. **4**(10): p. e297-1654.

93. Liberati, A., et al., *The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration*. PLoS Medicine, 2009. **6**(7): p. e1000100.
94. Higgins, J.P. and S. Green, *Cochrane Handbook for Systematic Reviews of Interventions*. 2011, London: The Cochrane Collaboration.
95. Clopper, C. and S. Pearson, *The use of confidence or fiducial limits illustrated in the case of the Binomial*. Biometrika, 1934. **26**: p. 404-413.
96. Kirkwood, B.R. and J.S. Sterne, *Comparing two proportions*, in *Medical Statistics*, B.R. Kirkwood and J.S. Sterne, Editors. 2003, Blackwell Science Ltd: Oxford. p. 148-164.
97. Deeks, J.J., J.P. Higgins, and D.G. Altman, *Analysing data and undertaking meta-analyses*, in *Cochrane handbook for systematic reviews of interventions*, J. Higgins and S. Green, Editors. 2011, The Cochrane Collaboration: London.
98. Kirkwood, B.R. and J.A.C. Sterne, *Medical Statistics*. 2003, Oxford: Blackwell Publishing.
99. DerSimonian, R. and N. Laird, *Meta-analysis in clinical trials*. Control Clin Trials, 1986. **7**(3): p. 177-88.
100. Peters, J.L., et al., *Comparison of two methods to detect publication bias in meta-analysis*. JAMA, 2006. **295**(6): p. 676-680.
101. Bengtsson-Tops, A. and K. Ehliasson, *Victimization in individuals suffering from psychosis: a Swedish cross-sectional study*. Journal of Psychiatric and Mental Health Nursing, 2012. **19**: p. 23-30.
102. Bengtsson-Tops, A., U. Markstrom, and B. Lewin, *The prevalence of abuse in Swedish female psychiatric users, the perpetrators and places where abuse occurred*. Nordic Journal of Psychiatry, 2005. **59**: p. 504-510.
103. Brekke, J.S., et al., *Risks for individuals with schizophrenia who are living in the community*. Psychiatric Services, 2001. **52**(10): p. 1358-1366.
104. Chang, J.C., et al., *Partner violence screening in mental health*. General Hospital Psychiatry, 2011. **33**(1): p. 58-65.
105. Chapple, B., et al., *Correlates of victimisation amongst people with psychosis*. Social Psychiatry and Psychiatric Epidemiology, 2004. **39**(10): p. 836-840.
106. Dean, K., et al., *Predictors of violent victimization amongst those with psychosis*. Acta Psychiatrica Scandinavica, 2007. **116**(5): p. 345-353.
107. Fitzgerald, P.B., et al., *Victimization of patients with schizophrenia and related disorders*. Australian and New Zealand Journal of Psychiatry, 2005. **39**(3): p. 169-174.
108. Fortugno, F., et al., *Symptoms associated with victimization in patients with schizophrenia and related disorders*. PLoS ONE [Electronic Resource], 2013. **8**(3): p. e58142.
109. Goodman, L.A., et al., *Recent victimization in women and men with severe mental illness: prevalence and correlates*. Journal of Traumatic Stress, 2001. **14**(4): p. 615-32.
110. Havassy, B.E. and A.A. Mericle, *Recent violence among persons entering short-term residential mental health and substance abuse treatment*. Journal of Dual Diagnosis, 2013. **9**(3): p. 222-227.
111. Honkonen, T., et al., *Violent victimization in schizophrenia*. Social Psychiatry and Psychiatric Epidemiology, 2004. **39**(8): p. 606-612.

112. Katsikidou, M., et al., *Victimization of the severely mentally ill in Greece: The extent of the problem*. International Journal of Social Psychiatry, 2013. **59**(7): p. 706-715.
113. Lin, L.P., et al., *Sexual assault of people with disabilities: Results of a 2002-2007 national report in Taiwan*. Research in Developmental Disabilities, 2009. **30**(5): p. 969-975.
114. McPherson, M.D., J. Delva, and J.A. Cranford, *A longitudinal investigation of intimate partner violence among mothers with mental illness*. 2007. p. 675-680.
115. Morgan, J.F., et al., *Domestic violence among female psychiatric patients: corss-sectional survey*. The Psychiatrist, 2010. **34**: p. 461-464.
116. Silver, E., et al., *Mental disorder and violent victimization in a total birth cohort*. American Journal of Public Health, 2005. **95**(11): p. 2015-2021.
117. White, M.C., et al., *History of arrest, incarceration and victimization in community-based severely mentally ill*. Journal of Community Health, 2006. **31**(2): p. 123-135.
118. Harbord, R. and J.P. Higgins, *Meta-regression in Stata*. The Stata Journal, 2008. **8**(4): p. 493-519.
119. Coid, J. and M. Yang, *Violence and delayed social independence among young adult British men*. Social Psychiatry and Psychiatric Epidemiology, 2010. **45**(3): p. 301-308.
120. Sampson, R.J., J.D. Morenoff, and T. Gannon-Rowley, *Assessing "neighborhood effects": Social processes and new directions in research*. Annual Review of Sociology, 2002. **28**: p. 443-478.
121. Weiner, M.D., et al., *Explaining the link between violence perpetration, victimization and drug use*. Addictive Behaviors, 2005. **30**(6): p. 1261-1266.
122. Coid, J., et al., *Relation between childhood sexual and physical abuse and risk of revictimisation in women: a cross-sectional survey*. The Lancet, 2001. **358**(9280): p. 450-454.
123. Fonagy, P., *Towards a developmental understanding of violence*. The British Journal of Psychiatry, 2003. **183**(3): p. 190-192.
124. Equality and Human Rights Commission, *Hidden in plain sight: inquiry into disability-related harassment*. 2011, Manchester: EHRC.
125. Nocon, A., P. Iganski, and S. Lagou, *Disabled people's experiences and concerns about crime: analysis of the British Crime Survey*. Equality and Human Rights Commission Briefing paper 3. 2011, Manchester: Equality and Human Rights Commission.
126. Department for Work and Pensions, *Family Resources Survey: United Kingdom 2009-2010*. 2011, London: Department for Works and Pension.
127. Home Office Research Development and Statistics Directorate and BMRB, *Social Research, British Crime Survey, 2009-2010 [computer file]*. . 2010, Colchester, Essex: UK Data Archive [distributor] SN: 6627.
128. Office for National Statistics, *User Guide to Crime Statistics for England and Wales*. 2012, HMSO: London.
129. TNS-BMRB. 21/5/2014]; Available from: www.tns-bmrb.co.uk/.
130. TNS-BMRB, *The 2011/12 Crime Survey for England and Wales: Technical Report*. Vol. 1. 2012, London: TNS-BMRB.
131. Archive, U.D.

132. Fitzpatrick, A., *British Crime Survey Offence Coding: coders' manual*, in *The 2010/11 British Crime Survey technical report, volume II appendices*. 2010, TNS-BMRB: London.
133. Fitzpatrick, A., *The 2010/11 British Crime Survey technical report: volume I*. 2011, London: TNS-BMRB.
134. Fitzpatrick, A. and C. Grant, *The 2010/11 British Crime Survey (England and Wales): technical report Vol. 1*. 2011, London: TNS_BMRB.
135. Brand, S. and R. Price, *The economic and social costs of crime*. Home Office Research Study 217. 2000, London: Home Office.
136. Home Office, *Revisions made to the multipliers and unit costs of crime used in the Integrated Offender Management Value for Money Toolkit*. 2011, Home Office: London.
137. Dubourg, R. and J. Hamed, *Estimates of the economic and social costs of crime in England and Wales: Costs of crime against individuals and households, 2003/04*. 2005, Home Office: London.
138. Walby, S., *The cost of domestic violence: 2009 update 2009*, Lancaster: Lancaster University.
139. Walby S., *The cost of domestic violence*. 2004, London: Department of Trade and Industry.
140. Hall, P. and J. Innes, *Violent and sexual crime.*, in *Crime in England and Wales 2009/10.*, J. Flatley, et al., Editors. 2010, Home Office: London.
141. Greenland, S. and K. Drescher, *Maximum Likelihood Estimation of the Attributable Fraction from Logistic Models*. *Biometrics*, 1993. **49**(3): p. 865-872.
142. Benichou, J., *A review of adjusted estimators of attributable risk*. *Statistical Methods in Medical Research*, 2001. **10**(3): p. 195-216.
143. Newson, R. <http://fmwww.bc.edu/repec/bocode/p/punaf.sthlp>. Accessed 13/1/2013 [cited 2013 14/01/2013].
144. Office for National Statistics, *Population Estimates for UK, England and Wales, Scotland and Northern Ireland - mid 2009*. 2010, ONS.
145. Research, D. 02/12/2014]; Available from: <https://www.dssresearch.com/KnowledgeCenter/toolkitcalculators/statisticalpowercalculators.aspx>.
146. Casteel, C., et al., *National study of physical and sexual assault among women with disabilities*. 2008. **14**(2): p. 87-90.
147. Martin, S.L., et al., *Physical and sexual assault of women with disabilities*. *Violence against Women*, 2006. **12**(9): p. 823-837.
148. Plummer, S.-B. and P.A. Findley, *Women With Disabilities Experience With Physical and Sexual Abuse*, in *Trauma, Violence and Abuse*. 2012. p. 15-29.
149. Meade, C., et al., *Long-Term Correlates of Childhood Abuse among Adults with Severe Mental Illness: Adult Victimization, Substance Abuse, and HIV Sexual Risk Behavior*. *AIDS and Behavior*, 2009. **13**(2): p. 207-216.
150. Steenland, K. and B. Armstrong, *An Overview of Methods for Calculating the Burden of Disease Due to Specific Risk Factors*. *Epidemiology*, 2006. **17**(5): p. 512-519
151. Johnson, M.P., *Conflict and control - Gender symmetry and asymmetry in domestic violence*. *Violence against Women*, 2006. **12**(11): p. 1003-1018.
152. Lund, E.M., *Community-Based Services and Interventions for Adults With Disabilities Who Have Experienced Interpersonal Violence: A Review of the Literature*. *Trauma Violence Abuse*, 2011. **12**(4): p. 171-182.

153. World Health Organization, *Violence prevention: the evidence-Reducing violence through victim identification, care and support programmes*. 2009, World Health Organization: Geneva.
154. Ramsay, J., *Advocacy interventions to reduce or eliminate violence and promote the physical and psychosocial well-being of women who experience intimate partner abuse*. Cochrane Database of Systematic Reviews, 2009.
155. Devries, K.M., et al., *Intimate Partner Violence and Incident Depressive Symptoms and Suicide Attempts: A Systematic Review of Longitudinal Studies*. Plos Medicine, 2013. **10**(5): p. 11.
156. Coker, A.L., et al., *Physical and mental health effects of intimate partner violence for men and women*. American Journal of Preventive Medicine, 2002. **23**(4): p. 260-268.
157. Afifi, T.O., et al., *Mental Health Correlates of Intimate Partner Violence in Marital Relationships in a Nationally Representative Sample of Males and Females*. 2009. **24**(8): p. 1398-1417.
158. Jewkes, R., *Emotional abuse: a neglected dimension of partner violence*. Lancet (London, England), 2010. **376**(9744): p. 851-2.
159. Yoshihama, M., J. Horrocks, and S. Kamano, *The role of emotional abuse in intimate partner violence and health among women in Yokohama, Japan*. American journal of public health, 2009. **99**(4): p. 647-53.
160. Mechanic, M.B., T.L. Weaver, and P.A. Resick, *Mental health consequences of intimate partner abuse - A multidimensional assessment of four different forms of abuse*. Violence against Women, 2008. **14**(6): p. 634-654.
161. Howard, L., et al., *Domestic violence and severe psychiatric disorders: prevalence and interventions*. Psychological Medicine, 2010. **40**(6): p. 881-893.
162. Ramsay, J., et al., *Domestic violence: knowledge, attitudes, and clinical practice of selected UK primary healthcare clinicians*. British journal of general practice, 2012. **62**(602): p. 647-655.
163. Rose, D., et al., *Barriers and facilitators of disclosures of domestic violence by mental health service users: qualitative study*. The British Journal of Psychiatry, 2011. **198**(3): p. 189-194.
164. Nyame, S., et al., *A survey of mental health professionals' knowledge, attitudes and preparedness to respond to domestic violence (†)*. Journal of Mental Health, 2013. **22**(6): p. 536-43.
165. Feder, G., et al., *Identification and Referral to Improve Safety (IRIS) of women experiencing domestic violence with a primary care training and support programme: a cluster randomised controlled trial*. The Lancet, 2011. **378**(9805): p. 1788-1795.
166. Trevillion, K., et al., *Linking abuse and recovery through advocacy: an observational study*. Epidemiology and Psychiatric Sciences, 2014. **23**(1): p. 99-113.
167. NICE, *Domestic violence and abuse: how health services, social care and the organisations they work with can respond effectively*. 2014, London: National Institute for health and Care Excellence.
168. Howard, L.M., R. Agnew-Davies, and G. Feder, *Domestic violence and mental health*. 2013, London: The Royal College of Psychiatrists.
169. Warshaw, C., C. Sullivan, and E. Rivera, *A Systematic Review of Trauma-Focused Interventions for Domestic Violence Survivors*. 2013, Chicago:

- National Collaborating Center for Domestic Violence, Trauma and Mental Health
170. National Centre for Social Research, *Adult Psychiatric Morbidity Survey 2007 User Guide*. 2007: NatCen.
 171. McManus, S., et al., *Adult psychiatric morbidity in England, 2007: Results of a household survey*. 2010, London: The NHS Information Centre.
 172. Goodman, L.A., et al., *Physical and sexual assault history in women with serious mental illness: Prevalence, correlates, treatment, and future research directions*. Schizophrenia Bulletin, 1997. **23**(4): p. 685-696.
 173. Mueser, K.T., et al., *Trauma, PTSD, and the course of severe mental illness: an interactive model*. Schizophrenia Research, 2002. **53**(1-2): p. 123-143.
 174. Neria, Y., et al., *Assaultive trauma and illness course in psychotic bipolar disorder: findings from the suffolk county mental health project*. Acta Psychiatrica Scandinavica, 2005. **111**(5): p. 380-383.
 175. Bellis Mark A, et al., *Protecting people, promoting health: a public health approach to violence prevention for England 2012*, Liverpool: Centre for Public Health.
 176. Thornicroft, G., *Social deprivation and rates of treated mental disorder-developing statistical models to predict psychiatric service utilisation*. British Journal of Psychiatry, 1991. **158**: p. 475-484.
 177. Khalifeh, H., et al., *Intimate partner violence and socioeconomic deprivation in England: findings from a national cross-sectional survey*. American journal of public health, 2013. **103**(3): p. 462-72.
 178. Babor, T.F., et al., *The Alcohol Use Disorders Identification Test*. 2001, World Health Organisation: Geneva.
 179. McArthur Violence Risk Assessment Study.
<http://macarthur.virginia.edu/risk.html>.
 180. Bernstein, D.P., et al., *Development and validation of a brief screening version of the Childhood Trauma Questionnaire*. Child Abuse & Neglect, 2003. **27**(2): p. 169-190.
 181. Bernstein, D.P. and L. Fink, *Childhood Trauma Questionnaire-Manual*. 1997: Pearson PsychCorp.
 182. Moran, P., et al., *Standardised Assessment of Personality - Abbreviated Scale (SAPAS): preliminary validation of a brief screen for personality disorder*. 2003. p. 228-232.
 183. Tyrer, P., et al., *The Social Functioning Questionnaire: A Rapid and Robust Measure of Perceived Functioning*. 2005. p. 265-275.
 184. Fitzpatrick, A., *The 2010/11 British Crime Survey (England and Wales): Volume 2- appendices*. Vol. 2. 2011, London: TNS_BMRB.
 185. Sherbourne, C.D. and A.L. Stewart, *The MOS social support survey*. Social Science & Medicine, 1991. **32**(6): p. 705-714.
 186. UK Data Service Census Support. [cited 2014 28/02/2014]; Available from: <http://geoconvert.mimas.ac.uk/help/faq.htm>.
 187. Hsieh, F.Y., *A simple method of sample size calculation for linear and logistic regression*. Statistics in medicine, 1998. **17**(14): p. 1623.
 188. Walsh, E., et al., *Prevalence of violent victimisation in severe mental illness*. British Journal of Psychiatry, 2003. **183**: p. 233-238.
 189. Teasdale, B., *Mental Disorder and Violent Victimization*. Criminal Justice and Behavior, 2009. **36**(5): p. 513-535.

190. Hiday, V.A., et al., *Impact of outpatient commitment on victimization of people with severe mental illness*. American Journal of Psychiatry, 2002. **159**(8): p. 1403-11.
191. Ellsberg, M., et al., *Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study*. The Lancet, 2008. **371**(9619): p. 1165-1172.
192. Devries, K.M., et al., *Intimate Partner Violence and Incident Depressive Symptoms and Suicide Attempts: A Systematic Review of Longitudinal Studies*. PLoS Med, 2013. **10**(5): p. e1001439.
193. Feder, G., C.N. Wathen, and H. MacMillan, *An evidence-based response to intimate partner violence: WHO guidelines*. JAMA: the Journal of the American Medical Association, 2013. **310**(5): p. 479-80.
194. Taft, A., et al., *Screening women for intimate partner violence in healthcare settings*. Cochrane Database of Systematic Reviews, 2013. **4**: p. CD007007.
195. Office for National Statistics, *Statistical Bulletin: Focus on: Violent Crime and Sexual Offences, 2011/12*. 2013, London: ONS.
196. Hernandez Diaz, S., et al., *The birth weight "paradox" uncovered?* American journal of epidemiology, 2006. **164**(11): p. 1115-20.
197. Robins, J.M. and S. Greenland, *Identifiability and exchangeability for direct and indirect effects*. Epidemiology, 1992. **3**(2): p. 143-55.
198. Jonas, S., et al., *Gender differences in intimate partner violence and psychiatric disorders in England: results from the 2007 adult psychiatric morbidity survey*. Epidemiology and Psychiatric Sciences, 2014. **23**(2): p. 189-199.
199. Chen, L.P., et al., *Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis*. Mayo Clinic Proceedings, 2010. **85**(7): p. 618-29.
200. Fisher, H., et al., *Pathways between childhood victimization and psychosis-like symptoms in the ALSPAC birth cohort*. Schizophrenia bulletin, 2013. **39**(5): p. 1045-55.
201. Arseneault, L., et al., *Childhood trauma and children's emerging psychotic symptoms: A genetically sensitive longitudinal cohort study*. Am J Psychiatry, 2011. **168**(1): p. 65-72.
202. Fialko, L., et al., *Understanding suicidal ideation in psychosis: findings from the Psychological Prevention of Relapse in Psychosis (PRP) trial*. Acta Psychiatrica Scandinavica, 2006. **114**(3): p. 177-186.
203. Health and Social Care Information Centre, *HES-MHMDS Data Linkage Report*. 2013, Leeds: HSCIE.
204. Gale, N., et al., *Using the framework method for the analysis of qualitative data in multi-disciplinary health research*. BMC Medical Research Methodology, 2013. **13**(1): p. 117.
205. Ritchie, J. and J. Lewis, *Qualitative research practice: a guide for social science students and researchers*. 2003, London: Sage.
206. Weiner, B., *AN ATTRIBUTIONAL THEORY OF ACHIEVEMENT-MOTIVATION AND EMOTION*. Psychological Review, 1985. **92**(4): p. 548-573.
207. Flynn, A. and K. Graham, *"Why did it happen?" A review and conceptual framework for research on perpetrators' and victims' explanations for*

- intimate partner violence*. *Aggression and Violent Behavior*, 2010. **15**(3): p. 239-251.
208. Mueser, K.T., et al., *A randomized controlled trial of cognitive-behavioral treatment for posttraumatic stress disorder in severe mental illness*. *Journal of Consulting and Clinical Psychology*, 2008. **76**(2): p. 259-271.
 209. Bjorkdahl, A., G. Hansebo, and T. Palmstierna, *The influence of staff training on the violence prevention and management climate in psychiatric inpatient units*. *J Psychiatr Ment Health Nurs*, 2013. **20**(5): p. 396-404.
 210. Campbell, R., et al., *The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: A mediational model of posttraumatic stress disorder and physical health outcomes*. *Journal of Consulting and Clinical Psychology*, 2008. **76**(2): p. 194-207.
 211. Messman, T.L. and P.J. Long, *Child sexual abuse and its relationship to revictimization in adult women: A review*. *Clinical Psychology Review*, 1996. **16**(5): p. 397-420.
 212. Lam, J.A. and R. Rosenheck, *The effect of victimization on clinical outcomes of homeless persons with serious mental illness*. *Psychiatric Services*, 1998. **49**(5): p. 678-683.
 213. Goodman, L.A., et al., *Episodically homeless women with serious mental illness: prevalence of physical and sexual assault*. *American Journal of Orthopsychiatry*, 1995. **65**(4): p. 468-78.
 214. NICE, *Violence: The short-term management of disturbed/violent behaviour in in-patient psychiatric settings and emergency departments*. 2005, NICE: London.
 215. Ramsay, J., et al., *Should health professionals screen women for domestic violence? Systematic review*. *BMJ*, 2002. **325**(7359): p. 314.
 216. UK National Screening Committee. *Screening Programme Appraisal Criteria*. 2014 [cited 2014 22/12/2014].
 217. Feder, G., et al., *How far does screening women for domestic (partner) violence in different health-care settings meet criteria for a screening programme? Systematic reviews of nine UK National Screening Committee criteria*. *Health Technology Assessment*, 2009. **13**(16).
 218. O'Doherty, L.J., et al., *Screening women for intimate partner violence in healthcare settings: abridged Cochrane systematic review and meta-analysis*. *BMJ*, 2014. **348**.
 219. Hegarty, K., et al., *Screening and counselling in the primary care setting for women who have experienced intimate partner violence (WEAVE): a cluster randomised controlled trial*. *Lancet (London, England)*, 2013. **382**(9888): p. 249-58.
 220. Carr, A., *The evidence base for couple therapy, family therapy and systemic interventions for adult-focused problems*. *Journal of Family Therapy*, 2014. **36**(2): p. 158-194.
 221. PILLING, S., et al., *Psychological treatments in schizophrenia: I. Meta-analysis of family intervention and cognitive behaviour therapy*. *Psychological Medicine*, 2002. **32**(05): p. 763-782.
 222. Henderson, C. and G. Thornicroft, *Evaluation of the Time to Change programme in England 2008-2011*. *British Journal of Psychiatry*, 2013. **202**(s55): p. s45-s48.

223. Mandelstam, M., *Safeguarding adults at risk of harm: a legal guide for practitioners*. 2011, Social Care institute for Excellence: London.
224. Howard, L., et al., *Violence and mental health*, in *Annual Report of the Chief Medical Officer 2013: Public Mental Health Priorities: Investing in the Evidence*, S. Davies, Editor. 2014, Department of Health: London. p. 227-238.
225. Crown Prosecution Service, *Victims and Witnesses who have mental health issues and / or learning difficulties: Prosecution Guidance*. 2011, Online: Crown prosecution Service.
226. Mind, *Achieving justice for victims and witnesses with mental distress: a mental health toolkit for prosecutors*. 2010, London: Mind.
227. Crown Prosecution Service, *CPS policy for prosecuting cases of disability hate crime*. 2007, Crown Prosecution Service: London.