

Criminal Firesetting: A Review of Available Psychological Interventions and an Experimental
Consideration of Expert Witness Credibility in Courtroom Decision-Making

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Thesis Portfolio Abstract

Aims: This thesis portfolio concerns the effectiveness of the available psychological interventions for adults who deliberately set fires. Secondly, an empirical research study investigated how the experimental manipulation of the expert witness's gender and profession (Psychiatrist/Clinical Psychologist) impacted mock jurors' perception of credibility, judgment, and decision-making in England and Wales.

Method: A wide range of psychological, medical, and social databases were systematically searched to provide a comprehensive review of the quantitative evaluations of psychological interventions targeting adult firesetting. The empirical study employed a validated, widely used Witness Credibility Scale in a mock video-based experimental design to explore the main and interaction effects of expert witness gender and profession on mock jurors' perceptions of credibility and decision-making.

Results: Fifteen studies (n = 358) were included in the systematic review, indicating the scarce evidence on this topic. Cognitive Behavioural Therapy (CBT) was the most commonly used intervention, predominantly in a group format. CBT has been primarily evaluated with highly selected samples (i.e., mental health inpatients or prisoners) and secure living environments in the United Kingdom (UK), providing short- and medium-term benefits in reducing key psychological vulnerabilities associated with firesetting. The empirical study findings revealed that credibility differences between male and female clinical psychologists and psychiatrists exist on the witness stand. Male psychiatrists, followed by female clinical psychologists, received the highest scores in most credibility variables. Finally, jurors were more likely to make decisions in line with highly credible expert witnesses.

Conclusions: This thesis portfolio suggests that larger and high-quality prospective studies are needed internationally and in multi-sites to assess whether the existing specialist firesetting interventions reduce firesetting risk. While this portfolio provides the first empirical evidence in the UK for further expert witness and juror training, more research is needed to understand jurors' unconscious biases and cognitive processes in making legal decisions.

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Chapter 1. Introductory Chapter

This chapter aims to introduce the composition of the portfolio and core concepts, which will help the reader navigate through the following chapters. In addition, an overview of the broad purpose and rationale for the systematic review and empirical research project is outlined.

Systematic Review

The systematic review of the thesis portfolio is presented first in Chapter 2. The systematic review concerns the availability and evaluation of firesetting interventions for adults who deliberately set fires. Firesetting is an international public health issue associated with significant psychological, social, environmental, and financial consequences on society. Government, police, and fire and rescue service data show that approximately 12.3 to 200 deliberate fires are set per 100,000 inhabitants every year across England and Wales, the United States of America (USA), Australia, and Canada (Federal Bureau of Investigation, 2022; Home Office, 2023; Statistics Canada, 2022 Mayhew, 2003; Smith et al., 2014). Smith et al. (2014) argued that there are two unreported arson victims for every incident reported to the police, indicating that many firesetting incidents may not come to the attention of the police or fire services. The considerable variation in these data is partially explained by the differing firesetting reporting systems across countries and the lack of a universal definition. As a result, an accurate estimation of the prevalence of deliberate firesetting is difficult (Meacham, 2020). Additionally, in England and Wales, only 1,379 individuals were convicted for “criminal damage and arson” between March 2021 and April 2022, which contrasts with 69,786 deliberate fires reported in the same annual year (Home Office, 2023; Ministry of Justice, 2022). This data implies that many firesetters might not come to the attention of the legal system.

Research studies also face difficulties in reliably estimating the prevalence of firesetting in the general population (Gannon et al., 2022; Tyler et al., 2019). The largest epidemiological US study with

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43,000 adults suggested a lifetime prevalence of firesetting behaviour of 1-1.13%, with 38% reporting that their firesetting behaviours persisted beyond the age of 15 (Blanco et al., 2010; Vaughn et al., 2010). Comparatively, UK studies using a more robust methodology (i.e., anonymised survey with more precise operational arson definitions) found that 11% to 17.8% of adults reported having set at least one deliberate fire for antisocial or “interest” purposes after the age of 10 (Barrowcliffe & Gannon, 2015, 2016; Gannon & Barrowcliffe, 2012). Similar high prevalence rates of lifetime deliberate firesetting have been reported among individuals admitted to a US state hospital (17.8%; Geller et al., 1992), UK or European forensic mental health services (10%–54.4%; Coid et al., 2001; Fazel & Grann, 2002; Hollin et al., 2013; Long et al., 2015; Repo et al., 1997), and those diagnosed with learning disabilities (LD) or autism (1.4%-66.6%; Alexander et al., 2015; Burns et al., 2003; Collins et al., 2021; Devapriam et al., 2007). Rates differ based on the definitions, recruitment, and sampling approaches (Collins et al., 2021; Tyler & Gannon, 2012).

Antisocial or offending behaviours are common among deliberate firesetters (Ducat et al., 2013; Dickens et al., 2009). Furthermore, firesetters are generally highly likely to re-offend and engage in general violent and non-violent offences (Ducat et al., 2015; Edwards & Grace, 2014), with some studies reporting estimation ranges for re-offending as high as 57% or 74% (Rice & Harris, 1996; Sambrooks et al., 2021; Thomson et al., 2018). Recidivism rates for firesetting incidents have been reported to range between 4% and 20% (Ducat et al., 2015; Edwards & Grace, 2014; Ducat et al., 2017; Rice & Harris, 1996; Sambrooks et al., 2021; Thomson et al., 2018) and between 8% and 10% for criminal arsons (Sambrooks et al., 2021).

Firesetting in children and youth is relatively well-researched (Johnston & Tyler, 2022; Perks et al., 2019). However, the literature on adult firesetting is comparatively limited, especially regarding treatment provision (Gannon & Pina, 2010; Dick & Sugarman, 2012). Since some impactful reviews of

adult firesetting (Curtis et al., 2012; Gannon & Pina, 2010; Palmer et al., 2007), there have been significant efforts in developing, implementing, and evaluating adult firesetting interventions. Recent reviews of the literature have indicated that further studies have been published over the past decade, which attempted to address some of the key methodological issues previously reported and describe the implementation of new standardised and specialist interventions (e.g., Gannon et al., 2022; Tyler et al., 2019). Since no similar systematic review has been published, we present the first systematic review that synthesises the evidence of firesetting interventions exclusively for adults.

In the adult firesetting literature, an emphasis has been placed on the profile, motives and risk factors for repeat firesetting. This has informed firesetting theories and robust risk assessment tools (Gannon et al., 2022). Predominant theories in the area include the Dynamic Behaviour Theory (Fineman, 1980; 1995) and Functional Analytic Theory (Jackson et al., 1987), which share some common philosophies of repeat firesetting. Using social learning theory (Bandura, 1977), Jackson et al. (1987) and Fineman (1995) supported the idea that repeat firesetting might be a learned behaviour that occurs in the context of a complex interplay between predisposing factors (i.e., dysfunctional developmental experiences, poor social strategies, and dissatisfaction with self or others), triggering events (i.e., unbearable feelings and cognitions) and perpetuating factors (i.e., relief from unpleasant internal emotions). Such perpetuating factors, either positive (i.e., elicit care from others) or negative (i.e., punishment), can work as reinforcers of the firesetting behaviour as the tool to meet personal needs (O' Ciardha & Gannon, 2012). While these theories provide a broad explanation of firesetting, they have been criticised for not explaining the impact and interaction of a wide range of fire-related risk factors in more detail.

More recently, Gannon et al. (2012) adopted a theory knitting approach (Kalmar & Sternberg, 1988), developing a more comprehensive overarching framework focusing explicitly on adult

firesetting. This framework integrates principles of previous theories in a multi-factor theory (Multi-Trajectory Theory of Adult Firesetting, M-TTAF; Gannon et al., 2012). M-TTAF suggests that developmental and critical early life experiences may lead to the individual developing specific psychological vulnerabilities (i.e., problematic interests, beliefs, or associations with fire). In later childhood and adulthood, these psychological vulnerabilities can be triggered by adverse life events or internal experiences (i.e., shame or rejection). Jacksons et al. (1987) described that internal and external reinforcements could strengthen these beliefs about setting fire and be a workable coping strategy. M-TTAF also concerns moderating factors (e.g., the individuals' mental health or self-esteem) that can positively or negatively reinforce the individual's psychological vulnerabilities, leading to a chronic and enduring risk of repeat firesetting ('critical risk factors'). Additionally, Gannon et al. (2012) introduced a set of prototypical firesetting trajectories derived from the interactions between psychological vulnerabilities and 'critical risk factors'. Gannon et al. (2012) grouped these trajectories into five key prototypical concepts: 'fire interest', 'emotional expression/need for recognition', 'antisocial', 'grievance', and 'multifaceted trajectories'. However, the empirical evidence to test and support these hypotheses is still limited, given the scarcity of research on this specific population (Gannon et al., 2022; Tyler et al., 2019).

Although this is an important first step in understanding firesetting patterns and behaviour in adulthood, it is widely recognised that adult firesetting-specific interventions should be further developed and evaluated (Gannon & Pina, 2010; Gannon et al., 2022; Tyler et al., 2019). Therefore, this systematic review aims to examine the existing psychological interventions for adults and the effectiveness of such interventions in reducing firesetting risk factors and other relevant psychological vulnerabilities. In addition, thoroughly exploring treatment options and "what works" in reducing

firesetting behaviours for adults will help clinicians, legal professionals, and service providers to make more effective plans about sentencing, treatment, and care pathways.

For this portfolio, “firesetting” and “firesetters” will describe all types of deliberate fires and the adults engaging in firesetting, respectively. These definitions are not restricted to legal terms (e.g., arson) or mental state (e.g., pyromania; Gannon & Pina, 2010). See the systematic review (chapter 3) for further information on the terminology.

Empirical Project

The empirical project (Chapter 4) concerns research with significant legal and clinical relevance. Stepping back from the treatment opportunities for individuals convicted or engaged in criminal firesetting behaviour, the empirical project attempts to address another research gap in the legal and clinical literature. This refers to the role of the clinical expert witness testimony and expert witness credibility in the legal decision-making before someone is convicted.

Clinicians, including clinical psychologists and psychiatrists, are often instructed to provide clinical opinions on a defendant in court and help jurors make well-informed decisions (Brodsky et al., 2010). Clinical expert witness testimony plays a vital role in the courtroom and in the cognitive process jurors use to make legal decisions (Brodsky et al., 2010; Krauss & Sales, 2001). Source credibility has been relatively well-researched over the past decades. Hovland and Weiss (1951) first observed that a message conveyed by a highly credible source could influence individuals’ judgment and opinions. Subsequently, several attempts have been made to conceptualise source credibility. For instance, McCroskey (1966) introduced the role of ‘ethos’ in a message’s effective communication and persuasiveness. The author argued that source credibility might depend on the individual’s ‘authoritativeness’ (competence) and ‘character’ (trustworthiness). Furthermore, research has indicated

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that source credibility may rely on other factors such as ‘expertness, reliability, intentions, activeness, and attractiveness’ (Giffin, 1967), ‘qualifications, safety (honesty or safeness), and dynamism’ (confidence or energy; Berlo et al., 1969), or ‘trustworthiness, competence, dynamism and objectivity’ (Whitehead, 1968).

In 2010, Brodsky and colleagues developed a formal Witness Credibility Scale (WCS) to help jurors and legal professionals judge an expert witness’s credibility rather than relying solely on their subjective opinion. While the WCS has been used and validated in research with various mock jurors’ samples, this has predominately been investigated in the USA (Brodsky et al., 2010). In contrast, there is limited research in experimental expert witness credibility studies in other countries with different legal and mental health systems. Indeed, this is particularly scarce when considering mental health professions, such as clinical psychology or psychiatry.

Although studies on expert witness credibility have indicated the possibility of demographics (e.g., gender) and credibility factors (e.g., credentials) of the expert witness to influence jurors’ judgement and ultimate legal decisions (e.g., verdict; Brodsky et al., 2010; Neal, 2014), there is little understanding of the interaction effect of such variables. Furthermore, most studies in the literature have been conducted in the USA, and research is sparse in England and Wales, where different legal systems and routes for mental health training exist. However, to the best of the authors’ knowledge, no published studies examine the main and interaction effects of expert witness gender and profession (clinical psychology/psychiatry) in England and Wales. Hence, the empirical study intends to contribute to this research gap.

In pursuit of understanding jurors’ perceptions of bias and credibility, the research project will attempt to answer two key questions. Firstly, the study will examine the main and interaction effects of expert witness gender (male vs female) and profession (Clinical Psychologist vs Psychiatrist) on mock

jurors' perceptions of credibility in English and Welsh courtrooms. Unfortunately, the literature is not well-established enough to determine apparent directional effects. Secondly, the study will explore whether such credibility variables, controlled for expert witness gender and profession, can affect and predict jurors' decision-making (i.e., determining a guilty verdict). The alleged case will concern a criminal arson offence.

These questions matter to the broader bodies of clinical psychology and psychiatry because if clinicians are not perceived as credible, then the importance of their message may be lost in the process of decision-making; alternatively, high credibility may mean that jurors or judges do not pay enough attention to the content of the actual message. This research is equally relevant to the client as it can make a difference between guilty or not, how a judge decides to sentence a case and other legal questions. Understanding how legal processes are made in the courtroom is critical in helping clinicians, legal professionals (e.g., judges or barristers), and jurors to make effective judgments and decisions.

Thesis Portfolio Composition and Overall Aim

This thesis portfolio first aims to investigate the available firesetting interventions for adults who deliberately set fires and contribute to understanding the treatment provision for this population within the criminal justice system. A bridging chapter (chapter 3) will link the key findings of the systematic review and the rationale for developing a forensic empirical project. The second aim of this thesis portfolio is to examine the role of clinical expert witness testimony in the courtroom in England and Wales. This will contribute to understanding the impact of the expert witness credibility on jurors' judgement and decision-making, which is critical in directing future practice, training, and research. Finally, a critical appraisal of the strengths and limitations of carrying out this work, alongside implications for future direction in research and practice, are discussed (chapter 6).

Chapter 2. Systematic Review

A Systematic Review of the Effectiveness of Psychological Interventions for Adults who Set Fires

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Abstract

Introduction: Firesetting is an international public health concern with significant consequences for individuals and society. However, the adult firesetting literature is limited, especially for treatment provision.

Method: PsycINFO, EMBASE, MEDLINE Complete, PsyArticles, Web of Science, Scopus, ProQuest Central, and CINAHL were searched for peer-reviewed quantitative studies considering psychological interventions targeting deliberate firesetting in adults.

Results: Of the 4,542 identified studies, 15 ($n = 358$ firesetters) met the inclusion criteria. Most studies comprised single-case or small-scale evaluations with highly selected samples, heterogeneous needs, and methodological limitations (e.g., lacking experimental control or reliable evaluation methods). CBT in a group format is currently the most evaluated intervention in UK secure-living environments. High-quality studies showed that CBT group-based interventions improved firesetting-specific outcomes (i.e., problematic interest and associations with fire) and key psychological vulnerabilities (e.g., anger expression or offence-supporting attitudes) among prisoners and mental health inpatients.

Conclusion: The paucity of high-quality evaluation studies and the considerable heterogeneity of the available study designs make it difficult to compare the existing interventions and draw reliable conclusions about “what works”. Larger prospective longitudinal studies are needed internationally with multi-site designs, follow-up recidivism data in the community, and control groups to determine whether these interventions can reduce firesetting risk.

Keywords: Arson, firesetting, intervention, treatment, adult, firesetter

Highlights

- Group-based cognitive behavioural therapy reduced short-term fire-related outcomes.
- An integrated fire safety education programme was found to reduce recidivism rates.
- Larger multi-site studies are needed with control groups and longer-term follow-up.
- International studies, diverse samples, and comparisons of modalities are needed.
- More reports of adverse effects and recidivism data will help answer “what works”.

Introduction

Deliberate firesetting is a worldwide public health concern with considerable psychological, financial, and social impacts on individuals and society. The consequences of deliberate firesetting are associated with severe injuries, fatalities, environmental damage, psychosocial problems, and financial costs to society. Government data in England show that Fire and Rescue Services attended 69,786 deliberate fires between April 2021 and March 2022, translating into approximately 123.5 deliberate fires per 100,000 inhabitants (Home Office, 2023a). This resulted in 43 fire-related fatalities and 865 non-fatal casualties, with 393 victims of firesetting requiring hospital treatment (Home Office, 2023b). However, in the same annual year, only 1379 individuals were convicted of “criminal damage and arson” (Ministry of Justice, 2022). This data implies that few individuals who set fires are successfully prosecuted in criminal courts.

Considering the global (Western) perspective, estimations of arson incidents range from 12.3 to 200 per 100,000 inhabitants across the United States of America (USA), Canada, and Australia (convicted or unconvicted; Federal Bureau of Investigation, 2022; Mayhew, 2003; Smith et al., 2014; Statistics Canada, 2022). The differing firesetting reporting systems and definitions could primarily explain the notable variation across countries (Gannon et al., 2022; Meacham, 2022). However, Smith et al. (2014) argued that arson incidents might be under-reported, indicating that two for every reported arson incident are never reported to the police.

In research, the prevalence of firesetting behaviour seems to range from 1% to 17.8% in community samples in the UK and USA, with the large spread likely being explained by studies using differing recruitment, data collection approaches and operational definitions of arson (Barrowcliffe & Gannon, 2015, 2016; Blanco et al., 2010; Gannon & Barrowcliffe, 2012; Vaughn et al., 2010). Higher prevalence rates have been reported for individuals with mental health conditions, learning disabilities

(LD), autism, and criminal history across the United Kingdom (UK), USA, and Europe, ranging from 1.4% to 66.6% (Alexander et al., 2015; Burns et al., 2003; Coid et al., 2001; Devapriam et al., 2007; Fazel & Grann, 2002; Geller et al., 1992; Hollin et al., 2013; Long et al., 2015; Repo et al., 1997). Similarly, these variations exist based on differing definitions, assessments, and sampling approaches (Collins et al., 2021; Tyler & Gannon, 2012). Regardless, firesetting is an internationally recognised public health concern that requires specialist treatment provisions (Tyler et al., 2019). Evidence shows that individuals who deliberately set fires are at higher risk of engaging in further deliberate firesetting (20%), criminal arsons (8-10%), and general offences (57-66%; Sambrooks et al., 2021). The impact of such behaviour is associated with enormous financial costs to society (Arson Prevention Forum, 2017).

Firesetting in child and youth offenders is relatively well-researched (Johnston & Tyler, 2022; Lambie & Randell, 2011; MacKay et al., 2012; Perks et al., 2019). However, adult firesetting is often considered a neglected research topic (Gannon & Pina, 2010; Tyler et al., 2019; Palmer et al., 2007). Yet, understanding the needs and risks associated with this group is important.

A growing body of literature has investigated adult firesetters' characteristics, risk factors, motives, and etiological features to develop psychological theories to help guide reliable assessment tools and identify treatment needs (Gannon & Pina, 2010; Gannon et al., 2012). The most predominant theories in the area included the dynamic behaviour theory (Fineman, 1980; 1995) and functional analytic theory (Jackson et al., 1987). More recently, Gannon et al. (2012) developed the Multi-Trajectory Theory of Adult Firesetting (M-TTAF), a comprehensive overarching framework of adult firesetting, which integrates principles of previous theories in a multi-factor theory. The M-TTAF argues that early life experiences may lead the person to develop certain psychological vulnerabilities (i.e., problematic interests or associations with fire), which can be triggered, moderated, and reinforced by life events or internal experiences, resulting in a chronic risk of firesetting (critical risk factors). These

psychological vulnerabilities interact with critical risk factors in a way that leads to five key trajectories of the firesetting behaviour (i.e., ‘fire interest’, ‘emotional expression/need for recognition’, ‘antisocial’, ‘grievance’, and ‘multifaceted’ trajectories; Gannon et al., 2012). Yet, there is limited empirical testing and understanding of the risk factors associated with firesetting.

Published reviews that include a section on treatment provision for adults have been limited to individuals with LD or autism (Collins et al., 2021; Curtis et al., 2012; Lees-Warley & Rose, 2015). To date, only one published systematic review (Curtis et al., 2012) and one unpublished thesis (Hughes, 2012) have synthesised the evidence of adult firesetting interventions. Although these reviews provide a critical overview of the published firesetting interventions for adults, they were conducted over a decade ago when only a few evaluation studies existed (Curtis et al., 2012; Gannon & Pina, 2010; Palmer et al., 2007). Over the past 15 years, practitioners and researchers have made efforts to develop specialist firesetting interventions for adults and address key methodological limitations. Secondly, Curtis et al. (2012) limited their search strategy to “arson” and “firesetting” and focused mainly on individuals of all ages with disabilities. As a result, the authors concluded that the few included studies were not well-designed to accurately estimate the effectiveness of firesetting interventions. Finally, while more recent reviews (e.g., Gannon et al., 2022) provide a broad overview of adult firesetting interventions, these lack a systematic synthesis and evaluation of the methodological quality, risk of bias, and effectiveness of these interventions. Thus, an up-to-date systematic synthesis and comprehensive evaluation of the literature on firesetting interventions for adult firesetters seems important.

To the author’s knowledge, no published systematic review has been conducted exclusively on psychological interventions for adult firesetters. Hence, the current review aims to address this research gap by systematically searching and reviewing the evidence for the existing firesetting interventions for adults. Firstly, this review will describe all the interventions developed to manage the risk of firesetting

in adults. Subsequently, this review will investigate outcomes reported for adults participating in firesetting interventions, evaluate their effectiveness and scientific integrity, and discuss implications for research and practice.

Method

Key Terminology

Acts of firesetting are interchangeably described as “arson”, “firesetting”, or “pyromania”. Arson is a restrictive legal term referring to a criminal offence of intentional or reckless unlawful destruction of property or damage to a person caused by fire (Gannon & Pina, 2010). Pyromania is a recognised psychiatric disorder with deliberate firesetting as its core symptom (American Psychiatric Association, 2013; WHO, 2023). Firesetting refers to all acts of deliberate fires that have the potential to cause harm to a person or damage property and are not limited to legal convictions or mental states (Dickens & Sugarman, 2012; Gannon & Pina, 2010). For this review, “firesetting” will describe all types of deliberate fires and “firesetters” all individuals who engage in deliberate firesetting.

Protocol Registration

The protocol of this systematic review was in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009) and was pre-registered on PROSPERO (registration number: CRD42022328229). The PRISMA checklist can be found in Appendix B.

Eligibility Criteria

The inclusion criteria concerned studies that (a) considered psychological interventions targeting deliberate firesetting in adults, (b) were peer-reviewed and available in English, (c) reported primary

quantitative data or used mixed methods analyses, and quantitative data could be extracted, (d) recruited adults (aged 18 and over) with a history of firesetting behaviours and/or arson convictions. A decision was made to include studies that described firesetting interventions but did not provide evaluation data to help identify all available interventions for adult firesetters in line with the review's first objective. Nevertheless, studies were excluded from the review if they (a) were not available in English or full text, (b) were not subject to peer review (e.g., unpublished manuscripts or service evaluations, theses, book chapters, conference presentations, websites, or blogs), (c) reported qualitative data only, (d) recruited children and adolescents (younger than 18 years) or used mixed samples where the differentiation of the adult sub-sample was not possible, (e) examined pharmacological treatments, (f) evaluated general treatments which were not specific to firesetting or did not differentiate firesetters from other offenders, or (g) reported general service outcomes instead of specific interventions.

Search Strategy and Study Selection

An initial scoping review was conducted to identify terms commonly used in the literature to describe firesetting (e.g., Collins et al., 2021; Johnston & Tyler, 2022). The complete search strategy can be found in Appendix C; alternative search terms were generated for "intervention", "arson", "effectiveness", and "adults". In short, studies were identified through a systemic online search of PsycINFO, EMBASE, MEDLINE Complete, PsyArticles, Web of Science, Scopus, ProQuest Central, and CINAHL Complete in May 2022 and updated in January 2023 by the first author (EK). No restriction on the year of publication was applied. EK and AS independently screened all titles, abstracts, and full-text studies. The agreement rates between the two screeners were 85.62% for the title, 89.51% for the abstract, and 97.12% for the full-text articles screening. Consensus between the two reviewers (100% agreement) was achieved, and all the discrepancies were resolved through discussion. Additionally, the first authors of two conference presentations were contacted by email requesting

clarification about any publications. However, a reply has yet to be received; therefore, these studies were not included in our review. Finally, reference lists, forward citations of all included studies, and relevant reviews (e.g., Collins et al., 2021; Curtis et al., 2012; Gannon & Pica, 2010; Lees-Warley & Rose, 2015) were hand-searched by EK.

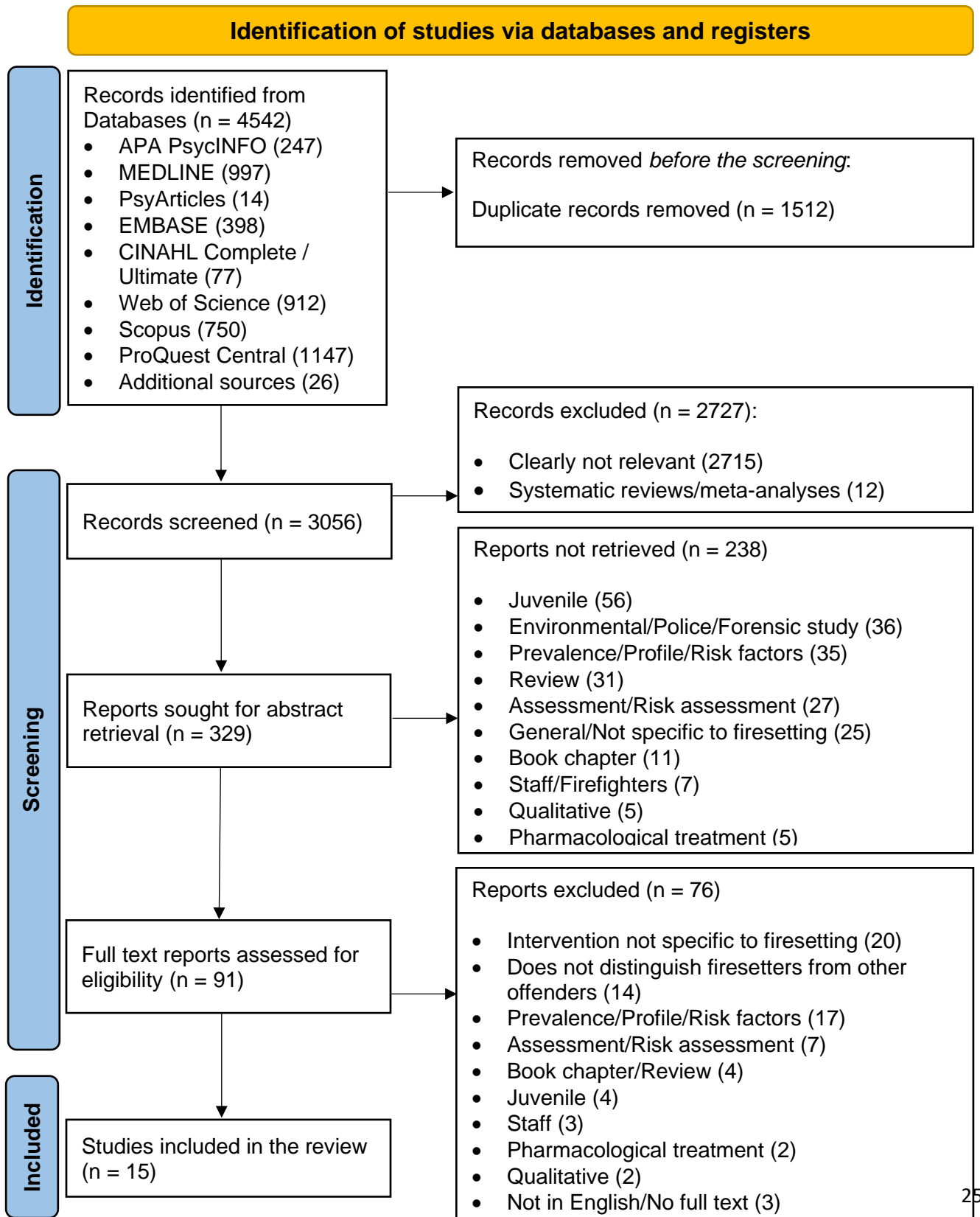
Identification of Studies and Data Extraction

The initial search of the electronic databases identified 4,542 studies. After duplicates were removed, 3,056 studies were considered in the initial review of titles and abstracts. Following the screening of titles and abstracts against our eligibility criteria, 2,727 studies were excluded, and the full texts of 91 studies were located and retrieved for further review. In addition, 26 studies were identified and retrieved through hand-searching the reference lists of the included and the forward citations. Overall, 15 studies met all the inclusion criteria and were included in our review.

Data extraction was conducted independently by two reviewers, EK and AS. Relevant study characteristics were extracted, including details for the authors, country, service, study design, recruitment, participants, sample composition, study strengths and limitations, and methodology quality. Furthermore, firesetting-specific data concerned firesetting types, criminal history, modality used, intervention characteristics (focus, format, length, and resources), treatment provider characteristics (e.g., qualifications or training), evaluation methods (e.g., psychometrics or recidivism), and key findings. Information on the core components of the interventions was extracted from the study descriptions, references, or forward citations.

Figure 1

Prisma Flowchart Including Review's Inclusion and Exclusion Criteria (n = 15)



Quality Assessment

The quality of all studies was assessed independently by two coders, EK and AS, using a standardised methodological quality checklist (Downs & Black, 1998). Following an independent blind review, each quality appraisal rating was individually discussed between the two coders to provide a consensus rating. This checklist has been widely used in healthcare intervention reviews to appraise heterogeneous quantitative studies (e.g., Lees-Warley & Rose, 2015). The checklist consists of 27 items exploring reporting information, biases of the measurement/intervention and confounders (internal validity), external validity, and statistical power. The total score is 28, with 25 items being assessed with 1 (Yes/compliant) or 0 (No/non-compliant); one item in the reporting subscale being scored as 2 (Yes/fully compliant), 1 (partially compliant) or 0 (No/non-compliant); and one item about power receiving scores 1 (sufficient power) or 0 (insufficient power). Greater scores indicated higher compliance and better methodological quality. Corresponding quality levels have been reported as poor (≤ 14), fair (15–19), good (20–25), and excellent (26–28; Hooper et al., 2008). Discrepancies between the two reviewers were resolved through discussion.

Results

Sample Characteristics

A total of 358 adults with a history of deliberate firesetting were sampled across the 15 studies. Of those, 268 firesetters received an intervention targeting firesetting or related psychological factors, and 85 received 'treatment as usual' (TAU) in only two studies (Gannon et al., 2015; Tylor et al., 2018). In one study, 5 participants received the control treatment and the main intervention in reverse order (Rice & Chaplin, 1979). Across the 15 studies, participants were sampled from high/maximum secure mental health inpatient ($n = 6$, 40%), prison ($n = 4$), low-secure ($n = 3$, 20%), medium-secure ($n = 2$,

13.33%), and specialist mental health (n = 1, 6.67%) services. One study also recruited firesetters in the community (Pearson et al., 2022). The sample of one study, Taylor et al. (2006), overlapped with a larger sample from a study by the same authors Taylor et al. (2002), reporting a more detailed analysis of a sub-sample and follow-up recidivism rates and, therefore, it was included in our analysis.

Demographic, Clinical, and Criminogenic Characteristics

The gender of the participants was reported in 14 studies (74% males, 21.8% females, 4.2% unknown), ethnicities in six (on average 92.75% were White), mean ages in eleven (aggregated mean age of 34.13 years), and age ranges in nine studies (17-74 years). Regarding diagnosis, six studies (40%) included participants with LD, five (33.33%) psychiatric disorders, four (26.67%) psychopathy, three (20%) personality disorders, and six studies (40%) did not report any diagnostic information. As noted, five studies (33.33%) sampled participants with more than one diagnosis. Furthermore, twelve (80%) studies included participants convicted of arson, nine (60%) included participants with additional non-fire-related offences, two (13.33%) included participants without conviction (Swaffer et al., 2001; Winters et al., 2022), and two (13.33%) did not provide this information (Hall, 1995; Royer et al., 1971).

Countries

Of the 15 included studies, eleven (73.33%) were conducted in the UK, three (20%) in the USA, and one (6.67%) in Canada. In the UK, four single case studies adopted either a DBT-informed approach (Ashworth et al., 2017), art therapy (Delshadian, 2003), CBT (Swaffer et al., 2001), or CBT combined with covert sensitisation and facial surgery (Clare et al., 1992). In the larger UK studies (n = 7), six adopted the CBT framework, and only one evaluated the effectiveness of a fire safety education (FSE) programme (Pearson et al., 2022). Only single case studies have been reported in the USA, with two using behavioural conditioning approaches, including covert sensitisation (Lande, 1980) and

aversion therapy (Royer et al., 1971) and one recent study adopting the CBT approach (Winters et al., 2022). In the only Canadian study, authors used social skills training in a small study of ten firesetters (Rice & Chaplin, 1979).

Study Designs

Of the 15 studies, seven (46.67%) were single case studies, five (33.33%) before and after (B&A) designs, and three (20%) were non-randomised quasi-experimental control trials. Only small (1-50 participants; 80%) and medium (50-300 participants; 20%) size studies were identified. Equally, only three studies (20%) included a control group (Gannon et al., 2015; Rice & Chaplin, 1979; Tyler et al., 2018). Some authors attributed the lack of control groups to ethical issues of withholding patient treatment (Annesley et al., 2017) or the low number of firesetters available (Pearson et al., 2022; Taylor et al., 2002, 2006). Finally, only seven studies performed statistical analyses (46.67%).

Methodological Quality Appraisal

Given the limited studies available, all identified studies were included in the current review irrespective of their quality appraisal ratings. Only three (20%) studies met the "good" standards of methodological quality and reported a low risk of bias, with three (20%) being rated as "fair" and most studies (n = 9, 60%) being rated as "poor" quality (Table 1). This implies a high risk of confounding effects, methodological biases, and poor internal and external validity. Hence, any conclusions derived from the narrative synthesis of the evidence should be carefully interpreted.

Table 1*Quality Appraisal of the Included Studies*

Study	Downs and Black checklist (1998)						Total score (/28)	Quality level
	Reporting (/11)	External Validity (/3)	Bias (/7)	Confounding (/6)	Power (/1)			
Annesley et al. (2017)	7	1	3	2	0	13	Poor	
Ashworth et al. (2017)	9	1	3	3	0	16	Fair	
Clare et al. (1992)	7	1	5	3	0	16	Fair	
Delshadian (2003)	1	1	0	0	0	2	Poor	
Gannon et al. (2015)	11	3	5	3	1	23	Good	
Hall (1995)	2	1	1	2	0	6	Poor	
Lande (1980)	6	0	4	1	0	11	Poor	
Pearson et al. (2022)	10	3	5	3	1	22	Good	
Rice & Chaplin (1979)	7	1	4	2	0	14	Poor	
Royer et al. (1971)	3	1	0	1	0	5	Poor	
Swaffer et al. (2001)	4	1	1	2	0	8	Poor	
Taylor et al. (2002)	7	1	2	2	0	12	Poor	
Taylor et al. (2006)	7	3	4	3	0	17	Fair	
Tyler et al. (2018)	10	3	5	3	1	22	Good	
Winters et al. (2022)	6	4	1	1	0	6	Poor	

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Table 2

Studies Evaluating the Effectiveness of Firesetting Interventions for Adults

Authors, Year, & Country	Setting	Sample Characteristics	Study Design	Intervention	Control Group	Outcome Measures	Key Findings	
							Fire-specific Outcomes	Secondary Outcomes
Group interventions								
Hall (1995) UK	High-secure psychiatric hospital	15 male and female inpatients (age unknown). Repetitive arsons.	B&A	Mixed-gender arson groups based on CBT and Jackson et al.'s (1987) functional analysis. Weekly 1.5h sessions with 3-5 facilitators (minimum of 1 year); a female-only group was set up later. Peer group supervision provided.	N/A	FNES GSS SADQ RAS MCSDS	N/A	8 (53.33%) participants dropped out. Some participants returned to support new members.
Rice & Chaplin (1979) Canada	Maximum security psychiatric facility	10 male inpatients divided into 2 groups (7 had varied arson convictions and 5 were medicated). Group 1 (N = 5): mean age = 22; diagnosed with PD and average or above-average IQ; average of 1 previous admission; 16 months of current admission.	NRCT	Social skills training (8 sessions) on assertiveness and anger and a control treatment for attention and expectancy of change (8 sessions). 2h sessions delivered twice a week for 4 weeks with 2 facilitators (3 therapists were involved). Group 1: social skills training followed by control treatment; participants modelled in the videotaped role-plays and received feedback from their peers. Group 2: participants received the same treatments in the reverse order, but therapists served as models and provided feedback.	Group 2 (N = 5): mean age = 32; mild to borderline LD; 3 had schizophrenia, 1 LD, and 1 PD; average of 5 previous admissions; 41 months of current admission.	Videotaped role-play assessments with actors before, between, and after both groups. Rated by blinded assessors in anxiety, assertion, empathy, and verbal skills. Researcher rated 20% to test for reliability. Assertiveness questionnaires.	No reports or suspicions of firesetting for 9 participants since their discharge (average time = 18 months). 1 out of the 10 participants was discharged and readmitted because of a minor fire (taken from Rice & Quinsey, 1980).	Group 1: Social skills sig. increased after the social skills group ($p < 0.05$) and maintained after control treatment ($p < 0.05$). No differences before and after the control ($p > 0.10$). Group 2: Sig. increase before and after both treatments ($p < 0.05$) and before and after the social skills group ($p < 0.01$). No differences before and after the control ($p > 0.10$). 9 patients were released into the community (Rice & Quinsey, 1980).

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				Participants were rewarded for participating.			Recidivism at 1-year follow-up.	
Taylor et al. (2002) UK	Low-secure LD forensic inpatient service	14 inpatients (8 males and 6 females); mean age of 33.7 (range 20-48 years). Mild-borderline LD (FSIQ range 64-84). All had arson convictions and were under MHA.	B&A	Northgate Firesetters Treatment Programme (NFTP) based on Jackson's (1987) functional analysis theory and CBT. 40 2h group sessions delivered twice weekly by a psychologist and nurse following a structured therapist's manual over 6 months. Participants were divided into 3 groups: one female group (n = 6) and two male groups (4 in each).	N/A	FIRS FAS GAS NAS CFSEI-2 BDI-SF	FIRS & FAS: 10 of 14 participants sig. improved (p < 0.05).	GAS: Total score (p < 0.001) and 3 subscales sig. improved: victim issues (p < 0.001), emotional expression (p < 0.05), and understanding of risk (p < 0.005). NAS: total score sig. improved (p < 0.05), but no changes in subscales. CFSEI-2: Total score, general and personal self-esteem scores sig. improved (p < 0.05). BDI-SF: No sig. changes.
Taylor et al. (2006) UK A sub-group of the Taylor et al. (2002)	Single-sex low LD secure forensic service	6 female inpatients (mean age = 34.4 years) Mild-borderline LD (FSIQ mean = 74.9, range 64-82); dual psychiatric diagnosis; arson convictions and under MHA (average length of stay = 3.1 years).	B&A	NFTP female-only group, as described in Taylor et al. (2002) study.	N/A	GAS FIRS FAS NAS CFSEI-2 BDI-SF Therapist rating scales after each session. Recidivism rate 2-year follow-up.	FIRS & FAS: no sig. change – considerable variation in individual participants' scores. 5 participants were discharged to community placements with no reports of firesetting a 2-year follow-up. Some participants seemed to have justified and rationalised instead of challenging their firesetting behaviours.	GAS: sig. improved (p = 0.023). NAS, CFSEI-2 & BDI-SF: all improved but not significantly. All participants completed the programme; >98% attendance. Only one participant needed individual support outside of the group.
Individual interventions								
Delshadian (2003) UK	Prison	Female prisoner (age unknown). 2 arson convictions	SC	2 years of Art Therapy (frequency and details of the intervention unknown)	N/A	Subjective therapist reports and observations.	Incidents of firesetting decreased. The participant developed insight into her firesetting and impulses, which she could process.	Incidents of self-harm decreased.

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Lande (1980) USA	Behaviour therapy unit	20-year-old White male Imprisoned for 2 firesetting incidents in his house associated with masturbation and fire fetish (pyrolagnia).	SC	Orgasmic reconditioning (4 weekly sessions) to increase heterosexual arousal (masturbating while viewing fire images followed by female nude images and imagining heterosexual activity). Covert sensitisation (3 weekly sessions) to decrease deviant sexual arousal to fire-related stimuli (masturbating while viewing pictures of fire and listening to highly unpleasant and adverse scenes).	N/A	Monitoring heart rate and penile circumference. Subjective verbal reports of arousal in response to nude women and fire slides. Recidivism rates at 4 and 9 months follow-up.	Sexual arousal and heart rate decreased for fire stimuli and were maintained 9 months later. No firesetting incidents for 9 months (living with relatives).	Sexual arousal increased for women and female slides and was maintained 9 months later. Heart rate for female slides increased and returned to the same rate in 9 months.
Royer et al. (1971) USA	Inpatient ward	Male inpatient Severely disorganised schizophrenia, severe LD, and persistent fire-setting behaviour. Medicated with phenothiazines.	SC	Aversion conditioning therapy with electric shocks: 9 sessions in 2 phases and 6 boosters (26 weeks). Phase 1: A series of cards with neutral and critical words (e.g., 'fire' or 'flame') were presented. Electric shock was delivered each time he read a critical word. Phase 2: Patient was asked to set fire to toilet tissues with matches 20 times. An electric shock was delivered each time the flame touched the paper and each time he ignited the match.	N/A	Latencies of picking up or lighting the matches and setting fire to the paper. Therapist observations. Recidivism rates.	Phase 1: No changes. Phase 2: The time of selecting and picking up the match was increased. The latencies before lighting the match, holding the match near the striker, and setting fire to the paper increased. No fire-setting incidents were reported for nearly 4 years.	Degree of contact, orientation, and general verbal coherence increased. Side effects (marked autonomic disturbance) were reported.
Winters et al. (2022) USA	Prison	25-year-old White incarcerated male Bipolar I disorder; 1 arson conviction; Medicated; attended other groups.	SC	Intervention for Firesetting Offenses (INFO; 8 individual sessions).	N/A	Therapist observations and self-report	No formal evaluation outcomes are reported. Improvement in understanding firesetting and motives/risk factors associated with firesetting. Relapse prevention plan was developed.	N/A

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Group interventions accompanied by individual sessions

<p>Annesley et al. (2017) UK</p>	<p>High secure mental healthcare service</p>	<p>22 female inpatients (mean age = 33, range = 21-47; 95% were White British). Detained under the MHA; 19 (86%) were convicted of arson/firesetting. 73% of participants also received DBT.</p>	<p>B&A</p>	<p>Arson Treatment Group Programme (ATGP) and Arson Treatment Individual Programme (ATIP) based on CAT and CBT combined covering the same modules. MDT input, supervision and training were offered. Two ATGPs (closed groups) ran weekly, 2.5h each, plus weekly/fortnightly individual sessions. 3-5 staff facilitators and 1 staff outside the room for support. Group 1 (n = 4) delivered 2007-2008 for 61 weeks (16 months). Group 2 (n = 5) Delivered 2011-2012 for 66 weeks (18 months). ATIP1: 2 high-risk patients between 2009-2010 (32 sessions). ATIP2: 4 high-risk patients between 2013-2015 (32 sessions).</p>	<p>N/A</p>	<p>ATGP1: BAI FIRS FAFS IRI PRI ELS ATGP2: IASC SPSI-R MSEI or RSES CRI PDS Patient feedback Supervisor records</p>	<p>ATGP1: 4/6 (67%) completed; 95% attendance. Interest in fire decreased. Participant's feedback: 4.08/5. ATGP2: 5/8 (63%) completed; 93% attendance. Participant's feedback: 4.40/5 ATIP1: 2/4 (50%) completed; 100% attendance. One participant's fire interest increased, and another's decreased. Participant's feedback: 4.88/5. ATIP2: 4/5 (80%) completed; 99% attendance. Depression, anger, and anxiety were the higher motivators for firesetting. Participant's feedback: 4.37/5.</p>	<p>ATGP1: Use of fantasy, personal distress, and loneliness decreased; no changes for socially desirable responding and blame attribution. ATGP1: Self-capacities, problem-solving, emotional problems, self-liking and global self-esteem improved. Impression management and self-deceptive enhancement varied. ATIP overall: all improved in 10/11 self-capacities, all emotional problems and problem-solving. ATIP1: improvements in global self-esteem, competence and lovability. ATIP2: improvements in self-esteem, self-liking, self-competence, and impression management. 7% drop out; 1/3 did not complete due to mental health deterioration or transfer to other settings.</p>
<p>Ashworth et al. (2017) UK</p>	<p>Medium secure LD service</p>	<p>Male forensic inpatient Diagnosed with mild LD (FSIQ =</p>	<p>SC</p>	<p>Adapted DBT programme (<i>I Can Feel Good</i>; Ingamells & Morrissey, 2014).</p>	<p>N/A</p>	<p>EPS-BRS CAMS-R ECQ CRI CIRCLE</p>	<p>N/A</p>	<p>Little or no change in most emotional and social skills. Little improvement in cognitive and behavioural functioning. Self-reported</p>

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		69) and EUPD. Under the MHA, 2 charges of arson, 36 offences, and 14 convictions.		47 2h group sessions were held off-ward weekly (3-9 participants in each session, 5 on average), facilitated by a clinical and a forensic psychologist in training. Trained nursing staff also assisted. Final 9 sessions were delivered in long-term segregation individually.		Staff notes after each session. Staff-reported measures completed by Named Nurse.		application of mindfulness strategies was increased but not observed by staff. Increased physical aggression, impulsiveness, and somatic concern. Overall risk maintained. Patient was transferred to another secure setting due to escalation in aggression. 91.5% attendance.
Clare et al. (1992)	Specialist inpatient unit (transferred from a maximum security hospital)	23-year-old male Diagnosed with psychopathic disorder and mild LD (FSIQ = 65); 2 arson convictions, 17 months of admission. History of firesetting and making hoax calls to the fire service and helplines (e.g., Samaritans).	SC	Treatment package based on CBT and Jackson's (1987) functional analysis (18 months). Graded exposure for anxiety of matches (3 months individually) and progressive muscle relaxation (individual and group weekly). Assertiveness, social and coping skills training (separate weekly groups, 1h each). Fire education with fire officers. Assisted covert sensitisation to increase self-control of firesetting (25 individual sessions). Surgery for facial disfigurement and part-time employment.	N/A	Rating of patient's features and facial attractiveness by staff/independent assessors. Ratings of social skills, criminal behaviour, employment, relationships, well-being, and independence by 60 independent assessors. Frequency of hoax calls. 48-month follow-up.	No evidence of firesetting, making hoax calls, or criminal offences during his admission and up to 48 months post-discharge to a community placement.	Sig. clinical improvements in coping and interpersonal skills, confidence in communicating feelings. Started a full-time job, moved into a supporting living accommodation and formed a romantic relationship. Face attractiveness: no sig. differences between unfamiliar people. Familiar staff judged his face as sig. more attractive following 3 surgeries ($p = 0.0195$),
Gannon et al. (2015)	7 medium secure prisons (2 treatment sites in the South of	99 male prisoners FIPP group (n= 54; mean age = 34.6; 79.7% were White European).	NRCT	Firesetting Intervention Programme for Prisoners (FIPP) based on CBT and M-TTAF. 9 standardised CBT groups (28 weekly 2h group sessions and	TAU group (n = 45; mean age = 31.4; 82.2% = White European.	FFS FRPQ-A MCAA-Part B NAS-PI NSLC UCLALS-R	FIPP participants sig. improved self-reported problematic interest and associations with fire (FFS total; $p = .001$, $d_z = .30$), which was maintained at 3-	FIPP participants sig. increased self-reported ability to effectively regulate anger ($p = .002$, $d_z = .45$), internalised locus of control ($p = .019$, $d_z =$

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	England and 5 TAU sites in England and Wales)	Mean formal education = 10.9 years; average self-reported adult fires = 5.3; average firesetting offences = 2.1.		weekly 1h individual sessions) each consisted of 4-10 participants. Delivered by one psychologist and one assistant psychologist; training and monthly supervision provided.	Mean formal education = 12.1 years; average self-reported adult fires = 3.4; average firesetting offences = 1.6).	SRAS-SF CFSEI-GS IM of BIDR6 Assessed at: • baseline • immediately post-treatment • 3 months post-treatment	month follow-up; were 3.45 times more likely to improve FFS score and 4.71 more likely to make at least one meaningful change in both fire-related and secondary outcomes than the TAU group (74.1% vs 37.8%). Higher levels of self-reported adult firesetting predicted greater improvement in FFS. Both groups sig. improved fire awareness, knowledge of strategies for managing firesetting risk, and relapse prevention strategies.	.33), attitudes towards violence ($p = .001$, $d_z = .46$), and antisocial attitudes ($p < .001$, $d_z = .51$) post-treatment and at 3 months. Both groups sig. improved self-esteem and ability to tolerate provocation; no sig. improvements in emotional regulation, social competence, NAS total, loneliness, assertiveness, or MCAA entitlement. Attrition rates were 58.8% for FIPP and 46.4% for TAU.
Pearson et al. (2022) UK	Low-security (category C & D) prisons or released in community	93 participants (mean age = 33.01, 89.3% were males, 96.8% were White British) Average of 5 offences; arson conviction; IQ > 70; not actively psychotic; no psychopathy; no murder convictions.	B&A	Firesetters' Integrated Responsive Educational Programme (FIRE-P). Developed by a fire and rescue service for offenders. Delivered in 7 sessions in groups up to 8 participants with two fire service staff or individually.	N/A	Actual (recorded) fire recidivism incidents versus expected rates, accounting for time available for offending pre- and post-treatment and fire related charges. Follow-up at 2-11 years (average 6.25 years).	Actual rates (n = 3) were statistically sig. lower than the expected rates (n = 57), with a large effect size ($r = 0.80$).	N/A
Swaffer et al. (2001) UK	Maximum security psychiatric hospital	34-year-old female Diagnosis of BPD and a conviction of arson.	SC	Structured treatment programme over 16 months based on Jackson's (1987) model and CBT. 62 weekly 2h mixed-gender group sessions with 2 facilitators (nurse	N/A	FIRS FAFS CFSEI RAS BDI NAS	No mid-treatment outcomes.	Improvement in assertiveness skills and ability to communicate emotions.

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		Attended DBT.		and psychologist): 10 inpatients with varied psychiatric diagnoses and LD, mean age of 30.3, and an average admission of 3.9 years. Monthly 1.5h individual sessions.		FNES SPSI SOC WCMRS by the facilitators.		Improvement in interactions with peers. Positive engagement with treatment.
Tyler et al. (2018) UK	26 low, medium, and high secure forensic psychiatric inpatient services	92 mentally disordered inpatients under MHA (83.7% were White British). FIP-MO group (n = 52): 34 males, 18 females; mean age = 36.56 (21-57 years old).	NRCT	Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO) based on CBT and M-TTAF. Semi-structured CBT group: 28 weekly 2h same-sex group sessions (3-8 in each group) and weekly 1h individual sessions. Delivered by two facilitators (one registered psychologist), after receiving standardised training.	TAU (n = 40) 26 males, 14 females; mean age = 34, (20-69 years).	FIRS FAS IFQ STAXI-2 NSLC PDS UCLALS-R SRAS-SF CFSEI MCAA-Part B Service user satisfaction questionnaire	Compared to the TAU group, FIP-MO participants sig. improved the total fire factor score ($p = .048$, $d_z = 0.40$). FIP-MO participants found the intervention beneficial in understanding their firesetting, the effects of fire, and fire safety awareness.	Compared to the TAU group, FIP-MO participants showed a sig. improvement in their ability to express anger ($d_z = 0.49$). FIP-MO participants had greater changes pre- and post-treatment in externalised locus of control, emotional loneliness, and antisocial attitudes than TAU.

Note. Key per column: **Sample characteristics:** BPD: Borderline Personality Disorder; EUPD: Emotional Unstable Personality Disorder; FSIQ: Full-Scale Intelligence Quotient; IQ: Intelligence Quotient; LD: Learning Disability; MHA: Mental Health Act (1983); PD: Personality Disorder. **Study design:** B&A: Before and After; NRCT: Non-Randomised Control Trial; SC: Single Case. **Intervention:** CAT: Cognitive Analytic Therapy; CBT: Cognitive Behaviour Therapy; DBT: Dialectical Behaviour Therapy; MDT: Multidisciplinary Team; M-TTAF: Multi-Trajectory Theory of Adult Firesetting. **Control:** N/A: Not Applicable; TAU: Treatment as usual. **Outcomes measures:** BAI: Blame Attribution Inventory; BDI: Beck's Depression Inventory; BDI-SF: Beck Depression Inventory – Short Form; CAMS-R: Cognitive and Affective Mindfulness Scale-Revised; CFSEI-2: Culture Free Self-esteem Inventory – 2; CFSEI-GS: Culture-Free Self-Esteem Inventory (2) – General Subscale; CIRCLE: Chart of Interpersonal Reactions in Closed Living Environments; CRI: Coping Response Inventory; ECQ: Emotional Control Questionnaire; ELS: Emotional Loneliness Scale; EPS-BRS: Emotional Problems Scale-Behaviour Report Scale; FAFS: Functional Assessment of Fire-Setting; FAS: Fire Attitude Scale; FFS: Fire Factor Scale; FIRS: Fire Interest Rating Scale; FIS: Fire Interest Scale; FNES: Fear of Negative Evaluation Scale; FRPQ-A: The adapted Fire Relapse Prevention Questionnaire; GAS: Goal Attainment Scales; GSS: Gudjonsson Suggestibility Scale; IASC: Inventory of Altered Self-Capacities; IFQ: Identification with Fire Questionnaire; IM of BIDR6: Impression Management Scale (IM) of the Balanced Inventory of Desirable Responding; IRI: Interpersonal Reactivity Index; MCAA-Part B: Measure of Criminal Attitudes and Associates-Part B; MCSDS: Marlowe-Crowne Social Desirability Scale; MSEI: Multidimensional Self-Esteem Inventory; NAS: Novaco Anger Scale; NAS-PI: Novaco Anger Scale & Provocation Inventory; NSLC: Nowicki-Strickland Locus of Control; PDS: Paulhus Deception Scales; PRI: Personal Reaction Inventory; RAS: Rathus Assertiveness Schedule; RSES: Rosenberg Self-Esteem Scale; SADQ: Social Acceptance and Distress Questionnaire; RAS: Rathus Assertiveness Schedule; SOC: Stages of Change; SPSI: Social Problem-Solving Inventory; SPSI-R: Social Problem-Solving Inventory-Revised; SRAS-SF: Simple Rathus Assertiveness Schedule – Short Form; STAXI-2: The State Trait Anger Expression Inventory-2; UCLALS-Revised: Revised UCLA Loneliness Scale; WCMRS: Woods Community Meeting Ratings Scale. **Key findings:** sig.: Significant.

Intervention Type

As presented in Table 2, five studies (33.33%) described interventions that addressed more general needs, and ten (66.67%) evaluated the effectiveness of specialist firesetting interventions. Most studies (n = 11, 73.33%) utilised a group intervention based on CBT (n = 8), DBT (n = 1), FSE (n = 1) and social skills training (n = 1). Participants received additional individual sessions or interventions in five group-based interventions (33.33%). Only six studies (40%) described individual interventions without additional group intervention.

General Interventions

Aversion Conditioning Therapy

Three single-case studies described behavioural conditioning. Aversion conditioning therapy (Royer et al., 1971) and orgasmic reconditioning combined with covert sensitisation (Lande, 1980) reduced firesetting incidents and related factors (e.g., sexual arousal or general interest). Assisted covert sensitisation was also used to increase self-control for firesetting (Clare et al., 1992).

Social Skills Training

Rice and Chaplin (1979) evaluated the effectiveness of a social skills group compared to TAU. Despite their small sample, the authors found that male firesetters with low to above-average intelligence developed effective communication and social skills following this group.

Art Therapy

Delshadian (2003) reported the delivery of art therapy to a female prisoner convicted of arson. The author noted that the patient's firesetting and self-harm incidents were reduced, with the patient developing insight into her firesetting. However, the study did not include standardised evaluation measures and failed almost all the methodological quality requirements.

Dialectical Behaviour Therapy

Ashworth et al. (2017) reported implementing a DBT-adapted programme on a male inpatient with mild LD and personality disorder. The authors noted a variation in the treatment outcomes and an increase in the patient's physical aggression, possibly attributed to a conflict with another peer. However, fire-specific outcomes were not reported.

Specialist Firesetting Interventions

Group-Based Cognitive Behavioural Therapy

Hall (1995) presented a structured group-based intervention built on Jackson's et al. (1987) "functional analysis" theory and CBT, piloted with 15 inpatient firesetters. Swaffer et al. (2001) also described a participant who attended a similar group. However, none of these authors reported evaluation outcomes. Adopting the same theories, a multifaceted and structured CBT group intervention was designed for adults with LD (Northgate Firesetters Treatment Programme; NFTP). Taylor et al. (2002) first evaluated the NFTP in 14 inpatient firesetters with LD. They reported significant improvements in fire interest and attitudes, anger, emotional expression, understanding of victim issues, understanding of risk, overall goal attainment score, self-esteem, and development of coping strategies. While gender-specific analyses showed little improvement in a sub-group of six female inpatients who completed the same group, five were discharged to supported living placements, and there were no reports of firesetting for at least two years (Taylor et al., 2006).

Gannon et al. (2015) reported piloting and evaluating a standardised, specialist CBT group treatment with accompanying individual sessions (Firesetting Intervention Programme for Prisoners; FIPP) in 54 incarcerated male firesetters. FIPP was developed based on contemporary offending rehabilitation theories, including the Good Lives Model (Ward & Stewart, 2003), the M-TTAF (Gannon et al., 2012), and the Risk Need Responsivity Model (Andrews & Bonta, 2014). A battery of standardised psychometrics showed that FIPP participants, compared to the TAU participants,

significantly improved their self-reported problematic interest and associations with fire, attitudes towards violence and antisocial behaviour, ability to regulate their anger effectively, and internalised locus of control. All these improvements were maintained three months post-treatment. Tyler et al. (2018) described implementing and evaluating another semi-structured CBT treatment programme in 52 male and female mental health inpatients (Firesetting Intervention Programme for Mentally Disordered Offenders; FIP-MO; Gannon & Lockerbie, 2014). The evaluation showed that the FIP-MO participants significantly improved their fire-specific outcomes concerning interest, attitudes and associations with fire, and anger expression compared to the TAU group.

Individual Cognitive Behaviour Therapy

Clare et al. (1992) developed and implemented a comprehensive CBT-based treatment package on a 23-year-old male firesetter with a mild LD. Subjective and observational assessments indicated clinical improvements in his coping and interpersonal skills, emotional expression, and firesetting behaviour for up to 48 months. Winters et al. (2022) presented a case of a 25-year-old incarcerated man with an arson conviction. The authors described a brief individual Intervention for Firesetting Offenses (INFO) but did not provide formal evaluation data.

Cognitive Analytic Therapy

Annesley et al. (2017) implemented and assessed the effectiveness of a CAT-informed, combined with CBT, firesetting intervention delivered individually (Arson Treatment Individual Programme; ATIP) or in groups (Arson Treatment Group Programme; ATGP) in 22 female inpatients. Descriptive analyses showed a significant variation in the assessed outcomes of the completers, with most participants showing small improvements in fire-related psychological factors.

Fire Safety Education

A brief structured FSE programme (Firesetters' Integrated Responsive Educational Programme; FIRE-P) was empirically evaluated in 93 firesetters from UK low-security prisons or the

community. At an average follow-up of 6.25 years (ranged 2-11 years), only three firesetting incidents were recorded in the local police risk management system, statistically significantly lower than the expected rates ($n = 57$) and with a large effect size ($r = 0.80$).

Primary Outcomes

As displayed in Table 2, nine studies (60%) used at least one fire-specific psychometric measure to assess fire-related factors (i.e., FAS, FIRS, IFQ, FAFS, FFS, or FRPQ-A).

Comparatively, only eight studies (53.33%) considered firesetting incidents (recidivism rates) or actual behavioural changes. Overall, 14 studies (93.33%) used observations or staff-reported measures, and 11 studies (73.33%) used additional self-reported measures. Three studies did not report fire-specific outcomes (Ashworth et al., 2017; Hall, 1995; Swaffer et al., 2001). Of the twelve studies that reported fire-related outcomes, only eight utilised formal evaluation methods (Annesley et al., 2017; Gannon et al., 2015; Pearson et al., 2022; Lande, 1980; Royer et al., 1971; Taylor et al., 2002, 2006; Tyler et al., 2018).

Fire-Related Factors

For individual interventions, two single-case studies provided subjective reports of the participants developing insight into firesetting (Winters et al., 2022) and reducing firesetting behaviours (Delshadian, 2003). Royer et al. (1971) reported that the participant's latencies increased for lighting the match and setting fire to the paper. Lande (1980) also reported that the participant's sexual arousal for fire-related stimuli was decreased.

For group interventions, participants with LD significantly reduced their problematic interests, attitudes, and associations with fire in one study (Taylor et al., 2002). However, no statistically significant differences were found among the few female participants in the same group (Taylor et al., 2006). Male prisoners who attended the FIPP showed a significant decrease in self-reported problematic interest and associations with fire up to 3 months post-treatment, compared to

TAU, with a medium effect size (Gannon et al., 2015). Participants were also found to be 3.45 times more likely to improve fire-specific outcomes than TAU participants (Gannon et al., 2015). Tyler et al. (2018) reported that FIP-MO participants significantly improved the total fire factor score compared to the TAU group, with a large effect size. Annesley et al. (2017) further observed that ATGP/ATIP reduced fire interest for some participants.

Recidivism Rates and Follow-up

Of the 15 studies, only seven (46.67%) reported follow-up data. The follow-up times ranged from 3 to 132 months, with an average of 32.14 months (Clare et al., 1992; Gannon et al., 2015; Lande, 1980; Pearson et al., 2022; Rice & Chapling, 1979; Royer et al., 1971; Taylor et al., 2006). One study described that follow-up assessments were impossible due to the transfer of the patient to another setting (Ashworth et al., 2017). Five studies indicated that participants were discharged to supporting living accommodations or relative houses (Clare et al., 1992; Lande, 1980; Pearson et al., 2022; Rice & Chaplin, 1979; Taylor et al., 2006).

Only seven studies reported recidivism rates and actual behavioural change (Clare et al., 1992; Delshadian, 2003; Lande, 1980; Pearson et al., 2022; Rice & Chaplin, 1979; Royer et al., 1971; Taylor et al., 2006). Of those seven studies, only two provided reliable measures (i.e., police recording systems) or regular follow-ups to monitor firesetting incidents (Clare et al., 1992; Pearson et al., 2022). Clare et al. (1992) indicated that the participant did not engage in further firesetting incidents, hoax calls to the fire services, or criminal offences up to 48 months post-discharge to a community placement when he was followed up at 2-3 monthly intervals. Additionally, Pearson et al. (2022) found a large effect size of FIRE-P in reducing recidivism rates ($r = 0.80$). The remaining five studies reported no evidence of the participants engaging in further firesetting incidents in prison, mental health units, or the community from 9 to 48 months post-treatment (Delshadian, 2003; Lande, 1980; Rice & Chaplin, 1979; Royer et al., 1971; Taylor et al., 2006).

Secondary Outcomes

Anger

Seven studies (46.67%) assessed participants' anger. Significant improvements were reported for adults with LD participating in NFTP (Taylor et al., 2002) but not for the female-only sub-group (Taylor et al., 2006). Little effect on anger regulation was reported for a participant with LD following DBT-adapted (Ashworth et al., 2017). Male prisoners and mental health inpatients significantly improved their self-reported ability to regulate their anger effectively, internalised locus of control (Gannon et al., 2015), and their ability to express anger (Tyler et al., 2018) with medium to large effect sizes. Regardless of treatment, male prisoners also improved their ability to tolerate provocation (Gannon et al., 2015). Finally, ATGP/ATIP showed varied and inconclusive effects (Annesley et al., 2017). Swaffer et al. (2001) did not report evaluation outcomes.

Depression

Five studies assessed participants' depression. Taylor et al. (2002, 2006) found no effects of NFTP on depression scores in non-clinically depressed adults with LD. Annesley et al. (2017) reported that depression was among the highest motivators for firesetting, and emotional problems were improved, while DBT showed little observed change in emotional skills (Ashworth et al., 2017). Swaffer et al. (2001) did not report evaluation outcomes.

Anxiety

Five studies assessed participants' anxiety. ATGP/ATIP (Annesley et al., 2017) and DBT-adapted had little effect on reducing anxiety levels (Ashworth et al., 2017). Social skills training reportedly improved participants' social skills, including anxiety (Rice & Chaplin, 1979). Hall (1995) and Swaffer et al. (2001) assessed fear of negative evaluation but did not report evaluation outcomes.

Empathy, Social Competence, and Loneliness

Ten studies assessed empathy, social competence, and emotional loneliness. Social skills group training showed significant improvements in adult firesetters' communication, empathy, and verbal skills (Rice & Chaplin, 1979). CBT showed benefits in coping and interpersonal skills and confidence in communicating feelings in two single-case studies (Clare et al., 1992; Swaffer et al., 2001). NFTP showed significant improvements in emotional expression for adults with LD (Taylor et al., 2002) but not for the female-only subgroup (Taylor et al., 2006). FIPP showed non-statically significant improvement in reported social competence, assertiveness, or loneliness for male prisoners (Gannon et al., 2015). Among mental health inpatients, FIP-MO did not significantly improve assertiveness, social competence, or loneliness (Tyler et al., 2018). ATGP/ATIP indicated little improvement in participants' loneliness, social competence, and socially desirable responses (Annesley et al., 2017). DBT-adapted had little effect on interpersonal skills in one participant with LD (Ashworth et al., 2017). Three studies found no significant changes in deception or impression management (Annesley et al., 2017; Gannon et al., 2015; Tyler et al., 2018). Hall (1995) did not report evaluation outcomes.

Self-esteem and Self-capacities

Six studies assessed self-esteem and self-capacities. NFTP showed significant improvements in self-esteem in adults with LD (Taylor et al., 2002) and minor non-statistically significant improvement for the female-only subgroup (Taylor et al., 2006). Regardless of their treatment group, male prisoners showed significant improvement in self-esteem (Gannon et al., 2015). However, FIP-MO did not significantly improve self-esteem in mental health inpatients (Tyler et al., 2018). ATGP/ATIP showed improvements in self-esteem, self-competence, self-liking, and most self-capacities (Annesley et al., 2017). Swaffer et al. (2001) did not report evaluation outcomes.

Attitudes Towards Offending and Antisocial Behaviour

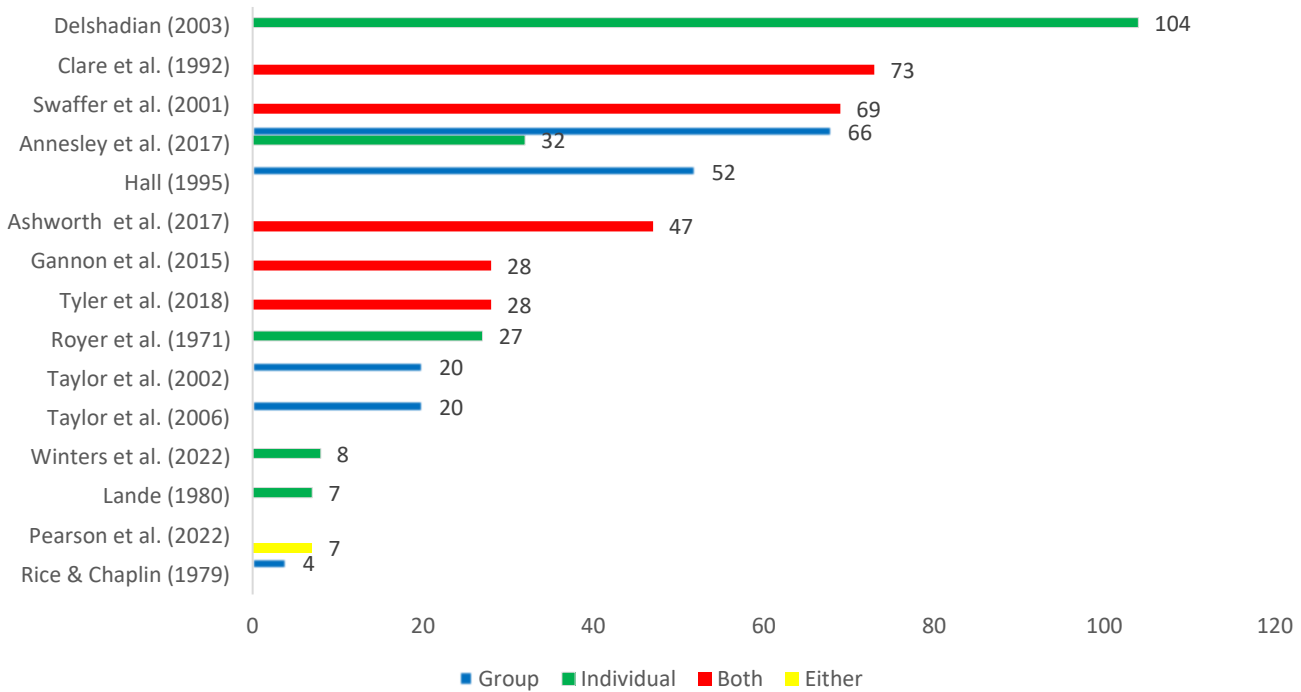
FIPP effectively reduced attitudes towards violence and antisocial behaviour in male prisoners with a large effect size (Gannon et al., 2015). While non-significant, FIP-MO participants showed greater improvements in antisocial attitudes compared to TAU participants (Tyler et al., 2018). NFTP was also effective in goal attainment, victim issues and understanding risk in inpatients with LDs (Taylor et al., 2002, 2006). In a case study, individual CBT reportedly decreased criminal behaviour (Clare et al., 1992). Increased physical aggression and impulsiveness were observed in one DBT-based study due to conflict with another peer (Ashworth et al., 2017). Finally, only one single-case study reported reduced self-harming behaviour following art therapy (Delshadian, 2003).

Resources for Therapy

Six studies reported that facilitators received training or followed structured therapist manuals (Annesley et al., 2017; Ashworth et al., 2017; Gannon et al., 2015; Taylor et al., 2002, 2006; Tyler et al., 2018). Three studies reported that clinical or peer supervision was offered (Annesley et al., 2017; Gannon et al., 2015; Hall, 1995). Ten studies reported needing 2-6 multidisciplinary team (MDT) members with at least one registered psychologist to facilitate each group session, while three studies required additional MDT support outside the sessions (Annesley et al., 2017; Ashworth et al., 2017; Clare et al., 1992). Two interventions were offered in different settings (Ashworth et al., 2017; Clare et al., 1992). The reported length of the individual interventions ranged from 7 weeks (Lande, 1980; Pearson et al., 2022) to 104 weeks (Delshadian, 2003), with an average duration estimated at 30.83 weeks. The group-only interventions ranged from 4 weeks (Rice & Chaplin, 1979) to 68 weeks (Annesley et al., 2017), with an average duration of 28.5 weeks. Finally, combined group and individual interventions ranged from 28 weeks (Gannon et al., 2015; Tyler et al., 2018) to 73 weeks (Clare et al., 1992), with an average duration of 49 weeks (Figure 2).

Figure 2

Length of Group, Individual, and Combined Interventions in Weeks



Retention Rates

Four studies reported dropout rates ranging from 7% to 53.33% (Annesley et al., 2017; Clare et al., 1992; Gannon et al., 2015; Hall, 1995; Pearson et al., 2022). Some reported reasons included mental health deterioration, transfer to another setting, declining to participate in research or missing information. The completion rate ranged from 50% to 100% for individual interventions in ten studies, with an average of 92.64%. Eight studies reported a completion rate ranging from 63% to 100% for the group-based interventions (average of 90.80%). Attendance rates for individual interventions were possible to be calculated in only five studies ranging from 91.5% to 100% (Annesley et al., 2017; Ashworth et al., 2017; Lande, 1980; Royer et al., 1971; Winters et al., 2022) and for groups in three studies ranging from 91.5% to 98.33% (Annesley et al., 2017; Ashworth et al., 2017; Taylor et al., 2006).

Discussion

Despite the clear need for offence-specific interventions (Fritzon et al., 2013; Gannon & Pina, 2010; Tyler et al., 2019), there is a sparsity of specialist interventions for adult firesetters. The available evidence of adult psychological firesetting interventions comprises 15 peer-reviewed studies totalling 358 adult firesetters, primarily focused on CBT (60%). Other studies investigated the effects of FSE (Pearson et al., 2022), DBT-adapted (Ashworth et al., 2017), art therapy (Delshadian, 2003), social skills training (Rice & Chaplin, 1979), and aversion conditioning therapy (Lande, 1980; Royer et al., 1971) on addressing non-fire-specific risk factors. These commonly targeted risk factors were poor social and coping strategies (Rice & Chaplin, 1979), sexual arousal (Lande, 1980), self-harm (Delshadian, 2003), emotion regulation and cognitive function (Ashworth et al., 2017), or general fire interest (Royer et al., 1971). However, it is still unclear whether these effectively reduce firesetting risk.

Effectiveness of Specialist Firesetting Interventions

Over the past two decades, there have been efforts to develop and evaluate specialist interventions for adult firesetters, mainly in the UK. These have consisted predominantly of CBT group-based interventions (Clare et al., 1992; Gannon et al., 2015; Hall, 1995; Swaffer et al., 2001; Taylor et al., 2002, 2006; Tyler et al., 2018), individual CBT (Winters et al., 2022), CBT and CAT combined (Annesley et al., 2017), and integrative FSE (FIRE-P; Pearson et al., 2022). All these interventions integrate CBT principles and primarily cover education on firesetting, coping strategies, problematic offence-related/antisocial attitudes, self-awareness and self-esteem, emotion management, communication and social competency, relationships, and relapse prevention.

The current literature on peer-reviewed evaluation studies primarily comprises single-case or small-scale studies. Only three medium size studies (92-99 participants) have provided evaluations of specialist firesetting interventions. Two similar semi-structured CBT group interventions, FIPP

and FIP-MO, underpinned by the M-TTAF (Gannon et al., 2012), are the most rigorous and high-quality evaluations. These have been developed and piloted with male prisoners (FIPP; Gannon et al., 2015) and male and female mental health inpatients (FIP-MO; Tyler et al., 2018). Both interventions improved key fire-related (interest, attitudes, or associations with fire) and psychological vulnerabilities (e.g., anger regulation or offence-supportive attitudes) with medium to large effect sizes using quasi-experimental non-randomised controls across multiple secure mental health and prison settings (Gannon et al., 2015; Tyler et al., 2018). However, the authors did not report recidivism rates or long-term data. It is, therefore, unclear if these effects can be reliably translated into behavioural change and be generalised across different environments (i.e., in the community). Another study reported a large effect size of FIRE-P in reducing firesetting incidents among adults in low-level prisoners or released into the community (Pearson et al., 2022). However, the authors used only one police reporting system to follow up on firesetting incidents and a broad definition of recidivism, which warrants caution in the generalisability of their findings.

While more research has been conducted with the child and juvenile firesetters and there is some evidence of the effectiveness of pure or multi-component FSE and CBT in reducing the risk of firesetting, reviews of the literature have highlighted similar methodological limitations to the adult literature (Dickens & Sugarman, 2012; Johnston & Tyler, 2022; Kolko et al., 2001, 2006; Lambie & Randell, 2011; MacKay et al., 2012; Perks et al., 2019). For example, Johnston and Tyler (2022) also summarised methodological issues in firesetting literature, such as the use of small and highly selected samples, underrepresentation of females, heterogeneity of studies, use of various outcome measures, weak research designs, high risk of reporting bias (predominantly parental and staff observations), and the lack of randomised control trials, long-term follow-up periods, reliable recording methods, and behavioural data. With this in mind, it is difficult to draw firm conclusions about what works for whom and whether the interventions designed for child and juvenile firesetters could be adapted to meet the needs of adult firesetters. Ultimately, these observations reflect the

challenges of conducting research and delivering and evaluating interventions within this clinical population, regardless of the age group and needs, and warrant further investigation.

Individual Versus Group Interventions

Most available firesetting interventions were delivered in groups, with supporting weekly or monthly individual sessions. Adaptations were reported for participants who found groups difficult to engage (Ashworth et al., 2017; Annesley et al., 2017; Pearson et al., 2022). Although some positive outcomes of varied individual interventions have been reported (Annesley et al., 2017; Clare et al., 1992; Pearson et al., 2022), no studies directly compared outcomes for group and individual interventions. Group-based interventions are common among offenders, and advantages for participants are widely reported (Ware et al., 2009). These include group processes (Mann & Fernandez, 2006), interpersonal skills learning (Tucker & Oei, 2007), peer support (Marshall et al., 2003), a 'sense of shared problems' (Abracen & Looman, 2016), and opportunities to learn from other participants and challenge beliefs (Hollin & Palmer, 2006; Ware et al., 2009). Group interventions have been considered a cost-effective approach as they can simultaneously offer consistency of treatment across many participants and become manualised so they can be readily delivered by a wide range of MDT staff with sufficient supervision and training (Davies, 2015; Hooling & Palmer, 2006).

Comparatively, individual interventions can be tailored to the individual's treatment needs based on an idiographic case formulation (Davies, 2019). This may enable a more specific exploration of an individual's offence cycle (Mann & Fernandez, 2006), higher levels of confidentiality (Gannon, 2015) and more effective management of complex mental health needs (Abracen & Looman, 2016). Furthermore, participants might be reluctant to engage with groups because of their anxiety (Ware et al., 2009). Other reasons for choosing individual over group interventions are lack of staffing resources or participant availability (e.g., participants might not

share the same treatment needs to make a group viable; Gannon, 2015). Withholding treatment until sufficient participants have been achieved to start a group raises ethical and clinical concerns (Ware et al., 2009). Although a combination of different modalities is often used in forensic settings to deliver therapeutic interventions, the evidence for the effectiveness of this approach for offence-specific interventions remains limited (Nagi & Davies, 2017). Within the general psychotherapy literature, evidence suggests that individual interventions may be equally effective as group interventions for most mental health difficulties (Davies, 2019; Ware et al., 2009). Regardless of the format, the effectiveness of each modality is likely to depend upon the individual's needs, risks, preference for therapy, and engagement, alongside the intervention's duration, intensity, and pace (Davies, 2019). However, none of these hypotheses has been empirically tested with adult firesetters.

A neglected research topic among offenders is the potential adverse effects of offenders participating in group-based psychological interventions (Ware et al., 2009). The authors of two studies noted that female participants found it hard to engage with mixed-gender (Hall, 1995) or single-gender (Annesley et al., 2017) groups. Another study observed that some female participants with LD seemed to have justified and rationalised (instead of challenged) their firesetting behaviours following a firesetting group (Taylor et al., 2006). This raises concerns about the risks associated with group interventions, such as maladaptive learning of firesetting behaviour from listening to other group members' stories or motives for firesetting or experiencing vicarious arousal or traumatisation (Parry et al., 2016; Taylor et al., 2006; Ware et al., 2009). Other adverse events associated with group interventions reported include clinically significant deterioration (i.e., escalation in aggression), which resulted in seclusion or a transfer to another setting (Annesley et al., 2017; Ashworth et al., 2017; Gannon et al., 2015). A long-term evaluation of an offence-specific group intervention designed for the treatment of sex offenders has indicated that more offenders who attended the group engaged in another sexual offence than those who did not attend the group (Mews et al., 2017). Given the limited focus on investigating and reporting adverse outcomes associated

with firesetting interventions, it is unclear whether group firesetting interventions could harm certain participants. This raises significant professional and ethical concerns about implementing offence-specific interventions with a limited evaluation of outcomes.

There is growing evidence that partial completion (i.e., dropping out) or 'ineffective' psychological interventions might cause significant adverse effects and a higher risk of reoffending (Marshall et al., 2003; Olver et al., 2011). Such adverse effects from therapy have serious implications for individuals and society, as they may increase recidivism (Farabee et al., 2004; Lowenkamp et al., 2006; Sambrooks & Tyler, 2019). Whilst most studies reported high rates of completers and attendance, their small sample sizes did not allow conclusive interpretations. Gannon et al. (2015) reported an attrition rate of 58.8% for the FIPP, which aligns with previous findings for group-based interventions for offenders (Olver et al., 2011). However, the authors did not compare completers with non-completers to explore the hypothesis about adverse effects. Similarly, none of the existing studies has compared completers and those who dropped out.

Sampling and Recruitment

A significant consideration is that all studies recruited highly selected samples residing in secure and restrictive living environments (e.g., prisons, secure mental health, or psychiatric inpatient facilities). Apart from one study that recruited participants released into the community (Pearson et al., 2022), no other studies recruited community samples. Whilst there is an obvious need for specialist treatment provisions for firesetters in inpatient and prison services, there are practical difficulties in measuring behavioural changes and firesetting risk in controlled environments (Gannon et al., 2015; Tyler et al., 2018). For instance, firesetting incidents are expected to be less frequent because of the participants' secure living and controlled environment, staff supervision, and limited availability and access to incendiaries or triggers. Life circumstances and maturation may

also impact participants' beliefs (Blokland & Nieuwbeerta, 2005; Shover, 1983). Thus, it is unwise to conclude that firesetting interventions alone effectively reduce the risk of recidivism.

Some studies followed up people released into the community (Clare et al., 1992; Pearson et al., 2022; Taylor et al., 2006). However, most participants were discharged to supported living accommodations with varied supervision from staff or ongoing engagement with MDT interventions. This implies that participants might still have restricted or monitored access to incendiaries, making it harder for them to set a fire. Thus, it is hard to know if the intervention alone prevented future reoffending. Similarly, most studies considered the lack of recorded firesetting incidents from the police, staff, or relatives as an indicator of the adults sustaining from firesetting behaviour. Evidence shows an underreporting of offence-like incidents, including firesetting (Smith et al., 2014). Therefore, this method of measuring firesetting incidents is limited. Pearson et al. (2022) also discussed the possibility that firesetting incidents might be recorded in different reporting systems or as a general offence, making obtaining and monitoring accurate data even harder. Interestingly, most studies did not record recidivism rates or behavioural changes in firesetting patterns which could be explained by restrictive settings and the lack of reliable firesetting reporting systems.

Notably, most studies were conducted in the UK with predominately White-identified participants. Only single-case or small-scale studies exist in the USA and Canada, which used diverse psychosocial interventions with considerable ethical and methodological issues (Lande, 1980; Rice & Chaplin, 1979; Royer et al., 1971; Winters et al., 2022). As a strength, most studies detailed the core components and the resources required for their intervention, allowing for replication. International collaboration is needed to adapt and evaluate existing interventions across different countries and cultures with more ethnically diverse and representative samples.

Additionally, varied selection criteria have been applied during the recruitment process across studies, including arson convictions, the severity of firesetting, clinical needs, and convenience

sampling. Moreover, Pearson et al. (2022) reported that referrals for firesetting treatment were rejected if sufficient information was unavailable. Gannon et al. (2022) recruited participants with higher self-reported firesetting incidents in two specific prison establishments. Higher levels of self-reported firesetting incidents have been found to predict greater outcomes in fire-related variables (Gannon et al., 2015). An implication of this is that those who take ownership of their firesetting incidents are more likely to benefit from the intervention (Gannon et al., 2015; Pearson et al., 2022). Thus, it is unclear whether recruitment bias may have impacted these outcomes, such as how non-completers with different needs or admitted to other settings would respond to the interventions. Finally, the effectiveness of firesetting interventions for adults with a single or not repeated firesetting behaviour remains unclear and warrants further attention (Winters et al., 2022).

Whilst prevalence studies indicated a higher prevalence of firesetting behaviours among people with LD (Collins et al., 2021; Lees-Warley & Rose, 2015), only four single-case or small-scale studies reported adaptations for adults with LD (Ashworth et al., 2017; Clare et al., 1992; Taylor et al., 2002, 2006). Despite some reported benefits of these approaches, the small sample size and lack of validated psychometric measures for this population make evaluating and generalising the findings difficult. The authors warrant the need for further adaptation and hypothesis testing.

A significant concern is the low statistical power of the studies included in this review and the lack of the reported effect sizes or significant levels to enable a quantitative comparison across studies. Thus, it is difficult to draw conclusive interpretations of the treatment effects. Overall, it is important to note that only 358 adult firesetters have participated in the evaluated studies, which reflects the difficulties of engaging adult firesetters within the criminal justice system in research. However, it is important that practitioners and service providers support people to participate in specialist interventions and their evaluation to help improve treatment provisions for adult firesetters.

A significant limitation was the absence of control groups in most studies and the difficulties of controlling for confounding sociodemographic, clinical, or environmental factors. Gannon et al. (2015) and Taylor et al. (2018) only used experimental controls to minimise the confounding effect of several factors, including incarceration time, demographics, or history of firesetting. However, the authors noted that regardless of the treatment, all participants showed some improvements in fire-related factors. Additionally, some environmental confounders were impossible to adjust due to the purposive sampling of participants residing in prison settings (Gannon et al., 2015).

Therapy Resources

Considering the resources and costs required to implement the available interventions for adult firesetters is important. Most interventions required multiple facilitators, MDT input, standardised training, supervision, and clinical time to accommodate weekly group sessions. Some group interventions were lengthy or required additional supporting individual sessions. Some authors indicated that standardised interventions could be facilitated by unregistered MDT staff (e.g., assistant or trainee psychologists) with adequate training and supervision, which can be considered a cost-effective approach (Davies, 2015; Hooling & Palmer, 2006). However, other studies highlighted the need for brief interventions for individuals with various backgrounds and motivations for firesetting (e.g., Pearson et al., 2022; Winters et al., 2022).

Limitations

This systematic review provides a comprehensive review of the available adult firesetting interventions, which is a significant contribution to the only published review by Curtis et al. (2012). However, given the considerable heterogeneity of the interventions, study designs, evaluation methods, and reported outcomes of the identified studies, a data meta-analysis was not appropriate. Thus, we hope that developing and publishing larger studies with more rigorous methodological and evaluation methods will allow for a meta-analytic synthesis of the effect sizes of such interventions

to shed light on the magnitude of these effects. Finally, the available small-scale and poor-quality evaluation studies did not allow conclusions to be drawn about the effectiveness of the firesetting interventions for adults. This raises practical and ethical issues for the practitioners who rely on evidence-based practice and calls for further evaluation of interventions and dissemination of such outcomes. Future research should employ more robust evaluation methods, including validated fire-related psychometric measures, clinically reliable changes, recidivism rates and reliable firesetting reporting systems (Gannon et al., 2022).

Implications for Practice and Research

Most studies assessed psychological vulnerabilities, cognitions, attitudes, and risk factors related to firesetting. Thus, prospective longitudinal multi-site studies with follow-up (i.e., self-report and clinician reports) and behavioural data (e.g., recidivism rates, firesetting incidents, conviction data) are needed to understand the long-term effects of these interventions, especially in less restrictive environments. For instance, future researchers could follow up with participants after discharge from secure living environments and monitor recidivism rates in the community using multiple evaluation methods from different sources (Falshaw et al., 2003; Friendship et al., 2003).

While some studies provided evidence of CBT interventions, future research could consider recruiting larger sample sizes to support the proposed effect sizes or comparing CBT with other traditional psychological interventions (e.g., FSE, CAT or DBT). Future research could also consider confounding variables that may impact treatment effectiveness in inpatient or prison settings (e.g. medications, ward activities, length of admission/sentence, and discharge conditions). Larger randomised or non-randomised control trials are needed to account for such confounders, using validated psychometric measures to assess intervention outcomes. FIPP and FIP-MO are currently under evaluation for long-term effects across different environments, which is positive (Gannon et

al., 2022; Sambrooks & Tyler, 2019). However, more international efforts are needed to generalise these findings across different cohorts of offenders and broader contexts.

The available evaluation studies highlight the need to develop and further evaluate specialist firesetting interventions for adults within the criminal justice system. The available evidence is fraught with confounding variables and methodological limitations. This poses difficulties for treatment providers, legal professionals, commissioners, and policymakers who make decisions about treatment provision or care pathways for adult firesetters (Sambrooks & Tyler, 2019). The individuals within the criminal justice system are also adversely impacted by the lack of evidence as they might not access the best quality care, which may delay their recovery and sentencing plans (Gannon & Ward, 2014; Tyler et al., 2019). Individuals who are not successfully prosecuted are also disadvantaged because they might not be offered specialist interventions outside of correctional settings.

Resources and staffing commitment are also important. For example, there is considerable variation within the demands for clinical time across the available interventions that must be considered. Furthermore, more evaluation studies are needed to explore the cost-effectiveness of such interventions, considering the needs of both service users and providers. Ethically, prospective longitudinal studies should investigate the effects of participating and not participating in such specialist groups, especially when the participants have been discharged to less restricted environments (i.e., in the community). Re-evaluation of such interventions across time is key to understanding their long-term impact. Finally, there are ethical implications to providing evidence-based treatment for those in need. Thus, clinicians and service providers have an obligation to keep monitoring and reporting any adverse effects associated with firesetting interventions to avoid causing harm to the participants and society by increasing reoffending (Sambrooks & Tyler, 2019).

Conclusion

This systematic review highlights the dearth of published evaluations of firesetting interventions for adults. The specialist interventions currently available for adults are resource-intensive, typically administered in a group format, and designed for certain typologies of individuals (e.g., mental illness). CBT has been the most evaluated intervention in UK prison and forensic mental health inpatient settings. The two most rigorous CBT group-based interventions, FIPP and FIP-MO, significantly improved short-term fire-specific and associated key psychological outcomes in male prisoners and mental health inpatient firesetters. However, methodological limitations should be considered while interpreting the evidence, such as the lack of highly-quality studies, reliable evaluation methods, long-term outcome measures and behavioural data (i.e., recidivism rates), and control of confounders. Whilst more research is needed to understand if the available interventions are reliably effective in reducing firesetting behaviour, it is recognised that adult firesetters within the criminal justice system have complex needs. Thus, a more standardised and evidence-based approach is needed to formulate effective treatment provision and sentencing plans.

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Chapter 3. Bridging Chapter

The aim of this chapter is to help bridge the systematic review on firesetting interventions for adult firesetters and the following empirical research study looking at the perceptions of expert witness credibility by mock jurors when mental health issues (e.g., in an arson offence) are considered in the courtroom.

The main findings of the systematic review showed that there is limited emphasis on implementing and evaluating specialist firesetting interventions for adults within the criminal justice system despite this being a paramount concern. Interestingly, most available published studies and the only standardised semi-structured specialist firesetting interventions (FIPP; Gannon et al., 2015; FIP-MO; Tyler et al., 2018) have been conducted in the United Kingdom (UK). Although three medium-size studies (92-99 participants) have shown some promising outcomes in reducing key psychological factors considered to increase the risk of firesetting in prisoners and mental health inpatients (Gannon et al., 2015; Pearson et al., 2022; Tyler et al., 2018), none of these interventions has been replicated outside the country or across different settings (e.g., in the community). Thus, concluding the generalizability of the existing specialist firesetting interventions in other cohorts of adult firesetters (e.g., living in the community or being diagnosed with a learning disability or autism) is unwise.

Despite the development of firesetting-specific theories (M-TTAF; Gannon et al., 2012) and interventions (e.g., FIPP and FIP-MO), availability and access to specialist interventions for adult firesetters in the criminal justice system (e.g., prison, probation, forensic community, or secure mental health services) are limited and lack empirical evidence to support their effectiveness. More importantly, other offences are relatively well-researched and have generated evidence to assess and address other offenders' needs (Baldwin & Beazley, 2023; McIntosh et al., 2021; Papalia et al., 2019). However, adult firesetting seems to be a neglected research topic. This implies that adults

facing arson charges might not get access to effective and evidence-based assessments and interventions across the criminal justice system. This poses significant difficulties to clinicians, legal professionals, and service providers to meet the needs of this population and provide successful care pathways.

Additionally, most participants in those studies were reportedly convicted of arson-related offences within the English and Welsh criminal justice systems and sectioned under the Mental Health Act (MHA) 1983. This highlights the need to understand better the legal processes of how decisions are made in response to conviction, care pathways, and sentence planning within the English and Welsh legal systems. The fact that only 358 adult firesetters have been offered treatment for their firesetting risk and participated in research raises a concern about the opportunities for treatment within the criminal justice system for this population. It is, therefore, essential to ensure that the right people are convicted and that effective and evidence interventions are in place to meet the needs of these individuals.

As a first step in understanding treatment for individuals who commit arson, we decided to step back and explore some of the legal processes of someone being convicted. The criminal justice system is typically one of the first services this group of individuals encounters after committing their offence. Furthermore, such decisions will impact subsequent treatment pathways (e.g. prison sentences, treatment orders, or community orders). At the same time, jurors might not be fully aware of the existing evidence and treatment opportunities when deciding on an adult firesetting offence. More specifically, we wanted to investigate how legal decisions, that is, jurors' decisions to assign someone to a guilty verdict after an arson offence, can be influenced by perceptions of expert witness credibility. We are interested in expert witness credibility because evidence suggests that when jurors lack the knowledge to fully understand the facts of the case or a clinical judgment, they may also consider the expert witness's credibility factors (e.g., credentials) or demographics (e.g., gender) to make their decision (Cooper et al., 1996).

A growing body of literature has explored the simple effects of gender and other credentials, such as the expert witness's professional group (psychology/psychiatry), on jurors' perceptions of credibility and decision-making (Brodsky et al., 2010; Neal, 2014). Notably, expert witness research in England and Wales is limited. Additionally, the credibility of clinical psychologists and psychiatrists, who are often instructed to assess someone's mental state and help jurors make an informed decision about someone's intention, has not been thoroughly investigated. Thus, understanding how perceptions of expert witness credibility can affect jurors' cognitive processes in making legal decisions, especially for adults facing arson charges, is crucial in making informed decisions.

Hence, the following chapter presents an experimental video-based research study exploring the main and interaction effects of expert witness gender and profession (Clinical Psychologist vs Psychiatrist) on jurors' perceptions of credibility, judgement, and decision-making in English and Welsh courtrooms. The alleged case concerns an arson charge where a mental health expert witness had been instructed to assess the defendant's mental state and present their clinical opinion in court during a mock criminal trial.

Chapter 4. Empirical Project

Perceptions of Bias and Credibility of Male and Female Clinical Psychologists and Psychiatrist Expert Witnesses Presenting Clinical Information in the Courtroom

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(Author guidelines for manuscript preparation can be found in Appendix D)

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Abstract

Expert witness testimony is crucial in the trial process and jurors' decision-making. Using the Witness Credibility Scale, this study examined how manipulations of the expert witness's gender (Male/Female) and profession (Consultant Clinical Psychologist/Consultant Psychiatrist) affected mock jurors' perceptions of credibility, judgement, and decision-making. One hundred eighty-two participants were recruited from England and Wales. Our results showed significant interaction effects of expert witness gender and profession on jurors' perceptions of likeability, trustworthiness, knowledge, and overall credibility. Male psychiatrists, followed by female clinical psychologists, received the highest scores in most credibility variables. Varied main effects of gender and profession were also found. Overall, jurors were more likely to make decisions in line with highly credible expert witnesses. These findings highlight the need for further expert witness and juror training and research to understand jurors' unconscious biases and cognitive processes in making legal decisions. Implications for research and practice are discussed.

Keywords:

Expert witness credibility, psychologist, psychiatrist, mental health expert, gender, court, jury decision making, witness credibility scale, forensic science, expert testimony.

Introduction

Clinicians, including psychiatrists and clinical psychologists, are frequently asked to present opinions on clients they have assessed as expert witnesses in the courtroom (Gudjonsson & Haward, 1998). Clinical expert witness testimony is crucial in the trial process and decision-making (Krauss & Sales, 2001). An expert witness is "a person who, through specialist training, study, or experience, is able to provide a court, tribunal, or hearing with relevant scientific, technical, or professional information or opinion, based on skills, expertise, or knowledge, that is likely to be beyond the experience and knowledge of the representing lawyers, judge, jury or panel" (BPS, 2021, para. 1.1).

In England and Wales, there are two critical decision-makers in the criminal cases presented in the Crown Courts: a judge and a jury. The jury consists of twelve members of the public ('jury of peers') who do not necessarily have professional training. Hence, courts depend on expert witnesses to help jurors understand and make decisions on complex cases, especially when the defendant's mental health is a factor to be considered (Gudjonsson & Haward, 1998; Gudjonsson, 2006). Jurors should decide their verdict considering only the facts of the case introduced to the court ('content-mediated impressions'). However, jurors often lack the knowledge, training, or preparation to fully understand the expert's specialised technical and scientific language (Cooper et al., 1996). Therefore, jurors may consider the expert witness's credibility ('peripheral' cues), expertise (e.g., credentials), or non-verbal communication ('source-mediated impressions') in addition to the case facts when making decisions in complex cases (Chaiken, 1980; Cooper et al., 1996; Cooper & Neuhaus, 2000; Flick et al., 2022; Hurwitz et al., 1992; LeVan, 1984; Petty & Cacioppo, 1986; Ruva & Bryant, 2004). Studies on source credibility have argued that jurors' decision-making may also be influenced by factors such as the experts' attractiveness, believability, or demographics (Boccaccini & Brodsky, 2002; Brodsky et al., 2010).

Source Credibility

A body of literature has investigated the role of source credibility in legal settings (e.g., Brodsky et al., 2010; DeBono & Harnish, 1988; Hurwitz et al., 1992; Neal et al., 2012; Ruva & Bryant, 2004; Sternthal et al., 1978; Swenson et al., 1984; Wessel et al., 2006). Hovland and Weiss (1951) first noted that highly credible sources could influence individuals' opinions. Other authors have similarly highlighted the potential for the perceived credibility of an expert witness to influence decision-making (e.g., Brodsky et al., 2010; Cooper et al., 1996; Cramer et al., 2014; Maddux & Rogers, 1980; Mondak, 1990; Wechsler et al., 2015). Latterly, the concept of credibility has become more formalised. Brodsky et al. (2010) developed a formal Witness Credibility Scale (WCS) and introduced four fundamental aspects of credibility, 'likeability', 'confidence', 'knowledge', and 'trustworthiness'. These are factors that jurors often consider when determining expert witness credibility according to theoretical frameworks (e.g., likeability framework; Stone & Eswara, 1969) and professional observations (e.g., Brodsky, 2004). The four factors witness credibility model aimed to introduce a more reliable, objective, and quantified measure of expert witness credibility for practitioners and researchers to use instead of relying on their subjective aspects of credibility (Brodsky et al., 2010). To date, the scale has been used widely in several expert witness studies and validated using mock jury samples (e.g., Cramer et al., 2009).

Mental Health Expert Witnesses

In the area of mental health evidence, medical professions (primarily psychiatry) have a more established place in the courtroom than applied psychologists (Gudjonsson, 2006). Before 1980, only medical practitioners and psychiatrists were permitted to provide expert witness testimony on mental health questions in England and Wales (Bluglass, 1990; Forshaw & Rollin, 1990). In addition, psychological evidence was only admissible as part of a medical evaluation (Fitzgerald, 1987). However, psychologists have subsequently become established as independent of fellow medical professionals and have for some years been able to testify as independent experts in English courts

(Gudjonsson, 2003; Gudjonsson & Haward, 1998; Haward, 1981; Ormerod & Roberts, 2006).

Moreover, over the past four decades, there has been an increasing demand for psychological court reports for cases questioning psychological and legal issues (Gudjonsson, 1996; Gudjonsson & Haward, 1998; O'Conner et al., 1996).

Concerning the source credibility literature, psychiatrists tend to be seen as more influential and reliable than psychologists (Dillon & Wildman, 1979; Dix & Poythress, 1981; Greenberg & Wursten, 1988; Leslie et al., 2007; Wechsler et al., 2015). However, Swenson and colleagues (1984) suggested that this may vary depending on the context of the case and the clinical problem being considered. Legal professionals and jury members are at risk of confusing psychologists' and psychiatrists' roles, training, and expertise (Corder et al., 1990; Leslie et al., 2007; Shapiro et al., 2015; Slobogin, 1999). Notably, the psychologists' expertise in mental health matters may be under-recognised. For example, a survey in the United Kingdom (UK) found criminal barristers to consider psychologists to deal with personality factors and functional deficits (e.g., personality disorders and IQ), whilst psychiatrists deal with diagnosis and treatment of mental illness (e.g., schizophrenia; Leslie et al., 2007). Such confusion between the two professions has led to several debates about the credibility and admissibility of psychological evidence in the legal field. It is possible that people still view psychology as a 'soft' social science (Dahir et al., 2005; Edens et al., 2012; Redding & Reppucci, 1999), separated from forensic or other types of 'hard' sciences (Heilbrun & Brooks, 2010). Barriers to admitting psychological evidence in court have included the diverse and complex nature of the profession (O'Donohue et al., 2004), complicated methodology (e.g., psychometric tests; Tunstall et al., 1982), confusion around psychologists' expertise (Shapiro et al., 2015), 'psychological jargon' (Corder et al., 1990), unstructured evaluation methods (Neal & Brodsky, 2016), and the lack of objective and impartial opinion (Corder et al., 1990; Leslie et al., 2007; Neal & Grisso, 2014).

Perhaps due to these factors, criminal barristers in the UK were found to trust, favour, and instruct more psychiatrists than psychologists (Leslie et al., 2007). A more recent finding on attorneys' perceptions in the United States (US) revealed that only 2.7% of the attorneys found psychological evidence more valuable and credible than other scientific evidence (Wechsler et al., 2015). This finding aligns with previous reflections regarding the lack of trust in psychological science in the courtroom (Edens et al., 2012; Monahan & Steadman, 1983; Redding & Reppucci, 1999; Shapiro et al., 2015).

Gender in the Courtroom

Another factor that seems highly relevant in courtroom credibility seems to be gender (Neal, 2014). Professional women, including psychologists and psychiatrists, are thought to be more likely to experience gender-based discrimination than men (Kaempf et al., 2015; Price et al., 2004; Riger et al., 1995). Research has indicated a notable tendency for participants to assign greater credibility ratings to male than female experts if females did not demonstrate the expected gender stereotypes (Memon & Shuman, 1998; Nagle et al., 2014; Neal, 2014; Neal et al., 2012), in complex testimonies (Schuller et al., 2005), or during cross-examination with gender-intrusive questions (Larson & Brodsky, 2010). In the US, attorneys have expressed a marked preference for retaining male over female expert witnesses (83% vs 17%), with one survey reporting that men received more than double the fees for testifying as expert witnesses than women (Kaufman, 2017). Similar underrepresentation of women has also been observed in the UK, with only 11% of the expert witnesses appointed in medical fitness to practice cases being females (Medical Protection Society, 2022).

Gender research in forensic and legal settings has highlighted the traditional differences between male and female communication styles and normative gender expectations based on the social role theory (Eagly et al., 1992; Ednie, 1996). It has been argued that men may appear more competent, confident, assertive, influential, direct, and able to manage their stress in court than

women. Comparatively, women may come across as more likeable, emotionally expressive, warm, compassionate, understanding, and communal than men (Brodsky & Gutheil, 2016; Cuddy et al., 2004; Eagly et al., 1992; Helgeson, 2009; Kaempf et al., 2015; Larson & Brodsky, 2010; McKimmie et al., 2004; Nagle et al., 2014; Neal, 2014; Neal et al., 2012; Strasburger et al., 2003). However, the nature and gender role expectations of the case may diminish gender-based differences (Neal, 2014).

Gender differences may have a more determining role when the expert's gender is perceived to be consistent with the characteristics of the party they have been instructed to assess (Neal, 2014). For instance, female experts have been viewed as having more credibility, understanding, and expertise on child custody or sexual harassment cases. In contrast, male experts have been perceived as more persuasive or trustworthy when they testified on 'male-oriented domain cases', such as homicide or vehicle service business issues (Adshead, 2005; Helgeson, 2009; McKimmie et al., 2004; Memon & Shuman, 1998; Price et al., 2004; Schuller & Cripps, 1998; Schuller et al., 2001; Swenson et al., 1984). Consistent with role incongruity theory, prejudices against gender are more frequent and profound when there is an incongruity between normative gender stereotypical behaviours and social role expectations (Eagly & Koenig, 2008). For example, female experts may be perceived as less reliable if they present with more masculine (e.g., confidence) than feminine gender stereotypical traits (e.g., likeability) within male-dominated roles (Brodsky et al., 2009; Eagly et al., 1992; Neal et al., 2012). Thus, advocates may be motivated to consider gender characteristics in their instructions to an expert witness depending on the nature and the context of the case domain (Eagly & Diekmann, 2005).

The Current Study

The above review lays a broad rationale for the potential relevance of gender and professional group (psychologist/psychiatrist) to jurors' perceptions of expert witness credibility and, subsequently, their decision-making process. In other words, we can hypothesise that there would be differences in jurors' perception of credibility between male and female psychologist and psychiatrist

expert witnesses testifying in court. However, the research is not well-established enough to specify the direction of the effect of these two factors for several reasons: a) there is a paucity of empirical research with a robust methodology to test those hypotheses, b) reported methodological limitations make it hard to generalise findings in different contexts, c) the diverse methodologies used in the literature make it difficult to compare the reported findings and draw reliable conclusions, d) several confounding variables have been reported which may influence the reported findings.

While previous studies have examined the simple effects of gender and mental health professions, namely psychology and psychiatry, on jurors' perceptions of credibility individually, no known studies have investigated the interaction effect of these two variables. Recent reviews on the expert witness literature have indicated that main effect findings do not fully represent jurors' cognitive procedures to judge expert witness credibility and make legal decisions. In contrast, interactive and contextual effects (e.g., the relationship between the expert witness, case, and juror characteristics) may be more helpful in understanding the whole picture (Neal, 2014; Thomas, 2010). Notably, previous studies on mental health expert witness credibility have been mainly conducted in the US, where the legal system and the training routes are different to the UK (e.g., Corder et al., 1990; Flick et al., 2022; Greenberg & Wursten, 1988; Kaempf et al., 2015; Nagle et al., 2014; Shapiro et al., 2015). It is unclear whether these findings could be transferred in Western societies with different legal and mental health systems, such as the UK. More importantly, most authors have primarily used survey- or attitude-based methods to assess mental health and legal professionals' experience of testimony (e.g., Corder et al., 1990; Kaempf et al., 2015; Leslie et al., 2007; Neal & Brodsky, 2016; Wechsler et al., 2015) or have solely used student samples which may be unrepresentative of an actual jury panel (e.g., Greenberg & Wursten, 1988; Neal et al., 2012).

For the aforementioned reasons, the current study employed an experimental simulation design to investigate the effects of professional type (psychologist/psychiatrist) and gender of the expert witness on mock jurors' perceptions of credibility, judgement, and decision-making in

England and Wales. To the author's knowledge, this is the first study proposing to address these specific questions in the UK. Understanding the extent to which perceptions of credibility rather than evidence may influence jurors' decision-making provides the first step to mitigating such biases, perhaps by increasing jury training or developing other interventions. If such biases exist without mitigation, a compelling message given by an expert may be ignored because of the expert's gender or profession. This implies that people in the criminal justice system with mental health issues may be adversely impacted.

Research Questions

1. Are there main or interaction effects of the expert witness's profession (Psychiatrist/Clinical Psychologist) and gender (Male/Female) on mock jurors' perceptions of credibility in a trial considering mental health issues in England and Wales?
2. Can expert witness credibility variables influence jurors' decision-making ('determination of guilt') in a mock trial once the gender (Male/Female) and profession (Clinical Psychologist/Psychiatrist) of the expert witness are considered?

Hypotheses

1. There will be differences in jurors' perceptions of credibility between male and female psychologist and psychiatrist expert witnesses. However, the literature is not established enough to specify clear directional hypotheses concerning each factor.
2. Jurors will be more likely to make decisions in line with a highly credible expert witness's opinion.

Method

Design

The current study employed a 2 (male versus female expert) X 2 (Consultant Psychiatrist versus Consultant Clinical Psychologist) between-subjects cross-sectional factorial design to examine potential differences between four experimental conditions. We video-recorded two actors

(one male, one female) testifying as mental health expert witnesses in a mock court trial. This design is consistent with previous studies on expert witness credibility (e.g., Cramer et al., 2014; Neal et al., 2012). We used the terms ‘Consultant Clinical Psychologists’ and ‘Consultant Psychiatrists’ for the profession manipulation. For brevity, these professions will be referred to as ‘psychologist’ and ‘psychiatrist’. The independent variables were gender and profession, with the four conditions of the study being ‘male-psychologist’, ‘male-psychiatrist’, ‘female-psychologist’, and ‘female-psychiatrist’. The dependent (outcome) variables were the expert's credibility ratings (trustworthiness, likeability, confidence, knowledge, and overall credibility) and jury decision-making (determination of guilt) assessed on a continuous Likert scale.

Participants and Recruitment

A priori power analyses, using the G*Power (Version 3.1; Faul et al., 2007), indicated that 154 participants would be sufficient to perform main and interaction effects in a two-way ANOVA and achieve medium effects (.25) with 0.8 power and $\alpha = .05$. Similarly, 92 participants would be sufficient for a regression model with medium effect (.15) and at least five predictors.

Participants were selected from an adult lay population from England and Wales using a reliable online recruitment platform (Prolific; Palan & Schitter, 2018). The survey was distributed based on UK census data to gain representative samples (Office for National Statistics, ONS, 2022) being cross-stratified on gender, age, and ethnicity. Inclusion criteria were developed to match the requirements of the Juries Act 1974, i.e. adults 18-76 years old who were fluent in English, had lived in England and Wales for at least five years, and did not have a criminal history. Participants were excluded from the study if they self-identified as having served a term of imprisonment or detention of more than five years, had been subject to a community order or sentence over the past ten years or were on bail in criminal proceedings.

Procedure

This study was conducted online using an online survey software, Qualtrics. Participants accessed the advertised link through their unique Prolific account and read the participant information sheet (Appendix E). Inclusion criteria and consent were checked before completing the survey. The online survey involved reading a vignette and watching a video of expert witness testimony in a mock criminal trial. Participants were asked to imagine participating as jurors and deciding whether the defendant was guilty. Written information was provided to participants about their role as jurors, the significance of their decisions, legal proceedings (i.e., determination of guilt), the defendant's background, and the role of the expert witness.

Participants were randomly assigned to one of the four clinical video conditions, each approximately 7 minutes long, with one participant watching only one video. After watching the video, participants completed an attention and manipulation check of three multiple-choice questions asking them to recall basic information presented, such as the defendant's name, alleged offence, and the expert witness profession. This check ensured that participants attended the video and could provide a valid opinion on the case and credibility variables (Flick et al., 2022). Participants who failed the attention and manipulation check by responding incorrectly to two out of three questions or failing the 'expert witness profession' alone were excluded from the final analysis.

In the next phase, participants were asked to complete the WCS, answering questions about how credible the expert witness seemed in the video. Following this, participants were given written information on 'mens rea' and directions from the hypothetical trial judge on deciding whether the defendant was 'guilty' or 'non-guilty'. Participants were guided through the questions a juror would have to consider when making this decision and were asked to report the likelihood of assigning the defendant to a guilty verdict. Participants' completion time was recorded (average completion time of 17 minutes).

Pilot Phase

Regional clinicians and university staff were approached to participate as actors. The first three male and three female participants of similar age, race, and ethnicity who consented to the study requirements were included as potential actors (Appendix F). All potential actors were White British. Participant-actors were asked to provide a passport-type photo (head and shoulders, smiling expression), which was shared individually with a focus group of 20 participants (Hosoda et al., 2003; Neal et al., 2012). The focus group consisted of general members of the community recruited via convenience sampling who did not know the actors. All focus group members signed a consent form to safeguard the actors' confidentiality (Appendix G). Then, they were asked to view the photos and rank the actors in order of factors from the WCS.

The two participant actors, one male and one female, with the middle rankings on these factors, were selected for the experimental phase. This process was adopted for two reasons. Firstly, previous juror research showed no significant differences between highly likeable male and female experts (Neal et al., 2012). Secondly, it provided some control for the impact of factors beyond gender on credibility ratings. The two actors met with the primary researcher at the University's Law School, which intended to replicate a courtroom setting for generalisability and were video recorded presenting the same written case study script. Actors were also asked to dress formally in similar neutral clothing (e.g., wearing a white shirt/blouse) and attend on the same day and time to minimise the confounding effect of background or appearance characteristics (e.g., light, place, dressing).

Experimental Manipulation

The experimental manipulation in this study referred to whether the clinical information within the mock expert testimony was presented by a 'Consultant Clinical Psychologist' or a 'Consultant Psychiatrist' of a different gender. This was achieved by developing two videos containing the same female actor and two videos containing the same male actor. The same actor was used for both videos to minimise the influence of possible confounders, such as distinctive face

characteristics, haircut, skin colour, attitude, or non-verbal behaviours. For the profession manipulation, the two chosen actors introduced themselves as a ‘Consultant Clinical Psychologist’ providing their ‘psychological assessment’ in the first video and a ‘Consultant Psychiatrist’ in the second, using an identical script.

Case Scenario and Video Script

The script for the case videos was adapted based on publicly reported criminal court cases in England and Wales (Elliott v C, 1983; R v G, 2003; R v Stephenson, 1979). The full and final vignette was structured to replicate an expert opinion provided to accompany oral testimony. The case vignette described the defendant’s background, mental health history, historical offences, details and specifics of his alleged offence, and a narrative formulation supported by neuropsychological tests (Appendix H). A clinical psychologist and a lawyer with expert witness experience reviewed the content of the testimony.

The same case scenario and script were presented for all the conditions. The defendant was accused of criminal damage by arson, an offence serious enough to be considered by a jury in a Crown Court. To make the study representative of a case that could, in practice, be readily assessed by either a clinical psychologist or psychiatrist, as well as reflecting actual legal instances in which these issues have been debated in practice (e.g., Elliott v C, 1983; R v G, 2003; R v Stephenson, 1979), we described the primary conditions of the defendant as a moderate Learning Disability (LD) and an Attention Deficit Hyperactivity Disorder (ADHD). An arson offence was chosen because firesetting behaviours are frequently reported among individuals with neurodevelopmental conditions (Collins et al., 2021).

Expert Witness Testimony

The expert witness in the video was portrayed as a Consultant Clinical Psychologist or Consultant Psychiatrist specialising and working in neurodevelopmental disorders services. The decision to address the experts as consultants was made to minimise any confusion around the

'consultant' status of the psychiatrist and match the perceived credibility between the two professions. In the testimony, the expert witness stated that they had been specifically instructed to address the issues of intent and recklessness in the defendant's case. Following the presentation of the defendant's case and their assessment, the expert witness shared their clinical opinion about the defendant's mental state.'

'Mens rea' Recommendation

Before making their final decision, jurors were asked to consider the defendant's state of mind ('mens rea'): their level of criminal intent, recklessness, and negligence. These elements of the offence form the 'mens rea' (mental element), which is part of a criminal act and is considered in jurors' decision-making. In the present case, the relevant 'mens rea' would be the defendant's intention and recklessness (i.e., 'whether the defendant could appreciate the risk and consequences associated with setting a fire'), which may have been significantly impacted by his conditions (LD and ADHD). This implied that the defendant had intended to start a small fire but did not appreciate that the fire would spread to cause more significant damage. The expert, therefore, recommended that the defendant's mental health conditions interacted with the 'mens rea' of the offence, a recommendation that, if accepted by the jury, would be associated with a 'not guilty' verdict.

Measures

Witness Credibility Scale. Credibility rating scores were assessed using the WCS (Brodsky et al., 2010; Appendix I). The WCS is a validated 10-point Likert-type scale that maximises variance and specificity. It consists of 20 adjective pairings (e.g., unkind-kind, reliable-unreliable, each measured on a 10-point scale) rated by an observer. Subscale scores (each ranging from 5-50) are summed for perceptions of expert witness confidence, likeability, trustworthiness, knowledge, and overall credibility (scores range from 20-200). Internal consistency values have been reported for each subscale (.88 – confidence, .87 – likeability, .90 – knowledge, and .94 – trustworthiness) by

Brodsky et al. (2010). These were similarly high in the present sample (.87 – likeability, .95 – trustworthiness, .92 – confidence, .91 – knowledge, and .96 – overall credibility).

Jury Decision-Making (Determination of Guilt). The jurors' decision to determine a guilty verdict was measured with a continuous 10-item Likert scale, with higher scores indicating a greater likelihood of assigning the 'guilty' decision. The question read: "*Bearing everything in mind, how appropriate do you think a guilty verdict would be in this case?*". This method is consistent with previous expert witness studies (Brodsky et al., 2009; Cramer et al., 2009, 2011; Neal et al., 2012).

Demographics. Participants were asked to report non-identifiable demographic information such as gender, age, ethnicity, education, and employment (Appendix J).

Ethical Considerations

Ethical approval was obtained through the Faculty of Medicine and Health Sciences Research at the University of East Anglia (Ref: 2021/22-024; Appendix K). Only non-identifiable data were collected. All participants provided informed consent electronically (Appendix L). Participants were informed of their right to withdraw at any stage of the survey without reporting the reasons for opting out, and their responses were not recorded. An online debrief statement was also provided, including information about seeking further support (Appendix M). Finally, all participants were thanked for completing the study by receiving a token payment in line with Prolific recommendations.

Statistical Analysis

All analyses were performed using IBM SPSS Statistics 24.0. Descriptive and correlation analyses explored the relationship between our two categorical independent variables (IV; *Profession*: psychologist/psychiatrist; and *expert's gender*) and our two continuous dependent variables (DV; *credibility ratings* and *jury decision-making*). Separate between-subjects two-way ANOVAs were conducted to investigate the interaction effects of the expert witness's gender and profession on jurors' perceptions of all aspects of credibility (likeability, trustworthiness, confidence,

knowledge, and overall credibility). Simple main effects and Bonferroni-adjusted pairwise comparisons within each simple main effect were performed to follow up on significant interaction effects. We also examined whether participant age, gender, ethnicity, education, profession, or employment moderated any of our effects. None made substantial changes ($p < .05$) and were not included in the final analysis as covariates. Effect sizes are reported for each significant variable observed ($p < .05$), with η^2 (eta squared) values representing small ($>.01$), medium ($>.06$) and large ($>.14$) effects (Vacha-Haase & Thompson, 2004).

Hierarchical multiple regression analysis was employed to examine if the expert's credibility ratings, controlled for gender and profession, predicted jurors' decision-making. First, a hierarchical regression model was developed in which the expert's gender, profession, and WCS total score were entered in separate steps to identify the moderating effects of the variables. Next, we examined whether this model could reliably predict our dependent variable, jurors' decision-making (determination of guilt). A stepwise regression, including all WCS subscales, was also run to determine the most robust predictor variables that accounted for the most variance in the jurors' decision-making. Given that it has not been possible to control for the interaction effect of two dichotomous categorical variables within the hierarchical regression model, we looked at the interaction effect of the expert witness's gender and profession on jurors' decision-making in an earlier stage. This was done by performing a two-way ANCOVA where the expert witness's gender and profession were placed as fixed factors, the determination of guilt was placed as the dependent variable, and the total credibility (WCS total) was the covariate.

Results

A total of 220 participants completed the online survey. Of those, 38 participants were excluded because they did not watch the whole video ($N = 8$), failed the attention and manipulation check ($N = 26$), or dropped out without completing the survey ($N = 4$). Overall, 182 participants (82.7% of the total sample) were included in the final analysis. Of the 182 participants, 80.9% were

White British, 50.5% were females, and the mean age was 40.67 (range 20-73 years, $SD = 14.39$), which is consistent with the median age of the UK population of 40.7 years (ONS, 2022), indicating a representative sample. Table 1 shows the demographic characteristics of the total sample. There were no statistically significant demographic differences between the participants of the four groups.

Relevant assumptions for parametric analyses (i.e., two-way ANOVA) were met (see Additional Results chapter). Assumptions of normality for the two-way ANOVA were violated for some subscales. However, given the relatively large sample size and that all groups were similarly negatively skewed, the two-way ANOVA was considered appropriate (Maxwell & Delaney, 2004).

Total Credibility

The data supported our first hypothesis that there will be differences in jurors' perceptions of credibility between male and female psychologist and psychiatrist expert witnesses (Table 2). There was a statistically significant interaction between the expert witness gender and profession on their perceived total credibility with a medium effect size, $F(1, 178) = 12.18, p = .001, \text{partial } \eta^2 = .064$. Figure 1 depicts this interaction. Simple main effect analyses revealed a statistically significant main effect of the profession on jurors' perceptions of overall credibility with a small effect size, $F(1, 178) = 4.86, p = .029, \text{partial } \eta^2 = .027$. Psychiatrists ($M = 168.61, SD = 21.38$) were rated significantly more credible than psychologists ($M = 161.25, SD = 24.03$). However, there was no statistically significant main effect of expert witness gender on the total credibility score, $F(1, 178) = .23, p = .635, \text{partial } \eta^2 = .001$.

Table 1*Participant Demographic Characteristics of the Total Sample and Subgroups*

	Male Psychologist (N = 44)	Female Psychologist (N = 44)	Male Psychiatrist (N = 48)	Female Psychiatrist (N = 46)	Total (N = 182)
Gender <i>n</i> (%)					
Male	26 (59.1)	19 (43.2)	25 (52.1)	20 (43.5)	90 (49.5)
Female	18 (40.9)	25 (56.8)	23 (47.9)	26 (56.5)	92 (50.5)
Age in years <i>M</i> (<i>SD</i>)	41.3 (13.5)	39.4 (13.5)	40.9 (15.1)	41 (15.7)	40.7 (14.4)
Ethnicity <i>n</i> (%)					
White	33 (75)	39 (88.6)	38 (79.2)	37 (80.4)	147 (80.9)
Black, African or Caribbean	3 (6.9)	1 (2.3)	4 (8.3)	4 (8.7)	12 (6.6)
Asian	6 (13.7)	4 (9.1)	3 (6.3)	1 (2.2)	14 (7.7)
Mixed ethnic groups	2 (4.6)	0 (0)	1 (2.1)	3 (6.6)	6 (3.2)
Other ethnic groups	0 (0)	0 (0)	2 (4.2)	1 (2.2)	3 (1.6)
National identity <i>n</i> (%)					
English	42 (95.4)	39 (88.6)	44 (91.7)	39 (84.8)	164 (90.1)
Welsh	1 (2.3)	1 (2.3)	1 (2.1)	2 (4.4)	5 (2.8)
Scottish/Northern Irish	0 (0)	1 (2.3)	0 (0)	1 (2.2)	2 (1.1)
Other	1 (2.3)	3 (6.8)	3 (6.3)	4 (8.7)	11 (6)
Education <i>n</i> (%)					
Secondary, higher or further education (GCSE, A-levels, etc.)	17 (38.6)	10 (22.8)	9 (18.7)	12 (26.1)	48 (26.4)
Undergraduate studies	20 (45.4)	20 (45.4)	25 (52.1)	25 (54.3)	90 (49.4)
Postgraduate studies	7 (16)	14 (31.8)	14 (29.2)	9 (19.6)	44 (24.2)
Profession <i>n</i> (%)					
Student	3 (6.8)	4 (9.1)	4 (8.3)	3 (6.5)	14 (7.7)
Legal professional	1 (2.3)	1 (2.3)	1 (2.1)	0 (0)	3 (1.7)
Mental health professional	1 (2.3)	1 (2.3)	1 (2.1)	3 (6.5)	6 (3.3)
Other	39 (88.6)	38 (86.4)	42 (87.5)	40 (87)	159 (87.3)
Employment <i>n</i> (%)					
Employed	32 (72.7)	30 (68.1)	35 (72.9)	31 (67.4)	128 (70.3)
Unemployed	9 (20.5)	10 (22.7)	9 (18.8)	7 (15.2)	35 (19.3)
Retired	2 (4.6)	2 (4.6)	4 (8.3)	7 (15.2)	15 (8.2)
I prefer not to say	1 (2.3)	2 (4.6)	0 (0)	1 (2.2)	4 (2.2)

Table 2*Means (and Standard Deviations) of Credibility Factors Defined by Expert Gender and Profession*

Gender	Profession	N	WCS				Total credibility
			Likeability	Trustworthiness	Confidence	Knowledge	
Male	Psychologist	44	36.27 (6.07)	38.45 (8.48)	40.61 (5.41)	40.98 (6.32)	156.32 (22.66)
	Psychiatrist	48	41.54 (6.23)	45.08 (4.69)	43.23 (6.42)	45.10 (3.84)	174.96 (18.93)
	Total	92	39.02 (6.67)	41.91 (7.51)	41.98 (6.07)	43.13 (5.55)	166.04 (22.70)
Female	Psychologist	44	42.39 (6.98)	42.5 (7.39)	37.55 (8.51)	43.75 (5.53)	166.18 (24.59)
	Psychiatrist	46	39.28 (5.98)	41.52 (6.55)	39.11 (6.6)	42.07 (6.58)	161.98 (21.97)
	Total	90	40.80 (6.64)	42.00 (6.95)	38.34 (7.59)	42.89 (6.11)	164.03 (23.25)
Total	Psychologist	88	39.33 (7.19)	40.48 (8.16)	39.04 (7.25)	42.36 (6.07)	161.25 (24.03)
	Psychiatrist	94	40.44 (6.18)	43.34 (5.92)	41.21 (6.78)	43.62 (5.54)	168.61 (21.38)
	Total	182	39.90 (6.69)	41.96 (7.22)	40.18 (7.08)	43.01 (5.82)	165.05 (22.93)

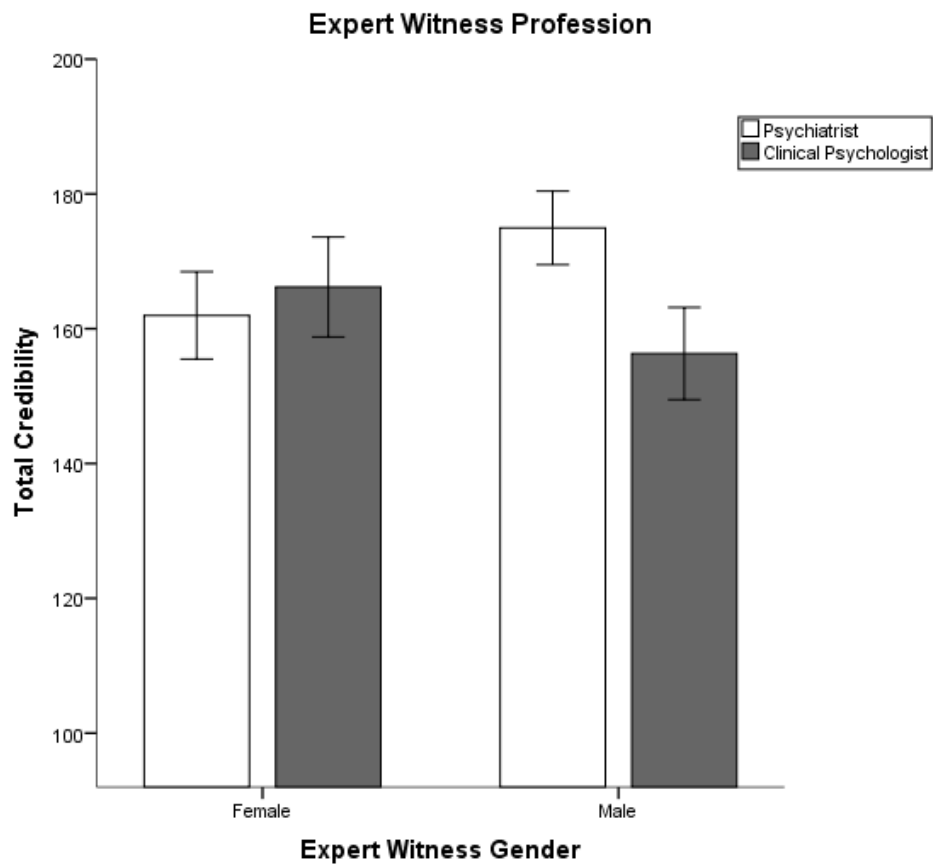
Note. WCS = Witness Credibility Scale

Pairwise comparisons showed that male psychiatrists ($M = 174.96$, $SD = 18.93$) were significantly more credible than female psychiatrists with a small effect size ($M = 161.98$, $SD = 21.97$), $F(1, 178) = 8.13$, $p = .005$, partial $\eta^2 = .044$. Whereas female psychologists ($M = 166.18$, $SD = 24.59$) were significantly more credible than male psychologists with a small effect size ($M = 156.32$, $SD = 22.66$), $F(1, 178) = 4.40$, $p = .037$, partial $\eta^2 = .024$. Looking at the professional differences between experts of the same gender, male psychiatrists ($M = 174.96$, $SD = 18.93$) were significantly more credible than male psychologists with a medium effect size ($M = 156.32$, $SD = 22.66$), $F(1, 178) = 16.39$, $p < .001$, partial $\eta^2 = .084$. However, there was not a statistically significant difference in total credibility scores between female psychiatrists ($M = 161.98$, $SD = 21.97$) and female psychologists ($M = 166.18$, $SD = 24.59$), $F(1, 178) = .82$, $p = .367$.

Figure 2 shows jurors' perceptions of expert witness likeability, trustworthiness, confidence, and knowledge based on the expert witness's gender and profession.

Figure 1

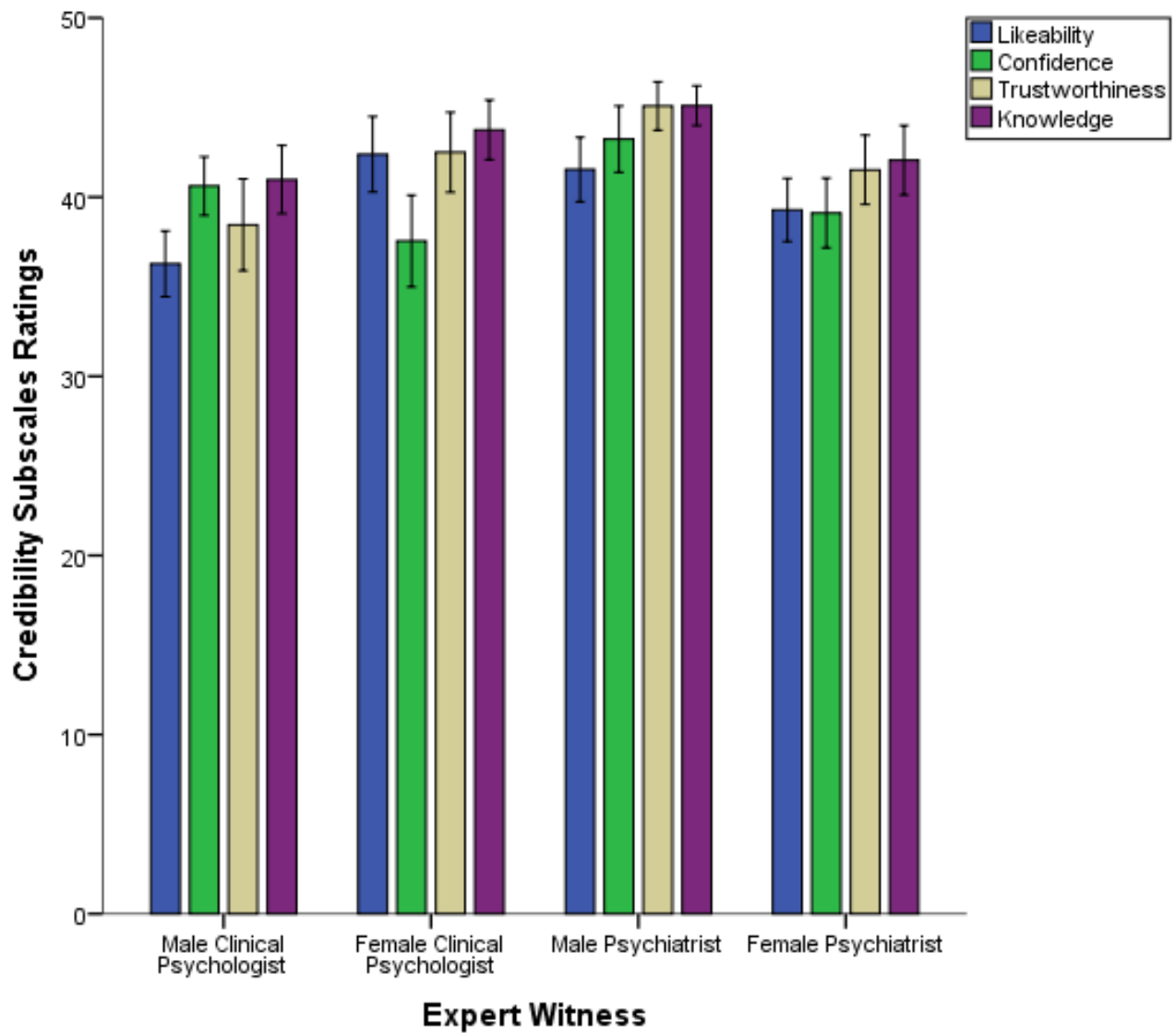
Two-way Interaction (Expert Witness Gender X Profession) on Jurors' Perceptions of Total Credibility



Note. Total credibility ratings are shown for male and female clinical psychologist and psychiatrist expert witnesses. Total credibility scores ranged from 92 to 200. Error bars show standard errors.

Figure 2

Jurors' Perceptions of Expert Witness Likeability, Trustworthiness, Confidence, and Knowledge Based on Expert Witness's Gender and Profession



Note. Total credibility subscales are shown for male and female clinical psychologist and psychiatrist expert witnesses. Scores ranged from 18-50 for total likeability, 16-50 for trustworthiness, 12-50 for confidence, and 16-50 for knowledge. Error bars show standard errors.

Likeability Subscale

There was a statistically significant interaction between the expert witness gender and profession on likeability score with a medium effect size, $F(1, 178) = 19.94, p < .001$, partial $\eta^2 = .101$. Looking at the simple main effects, female expert witnesses, regardless of profession, were significantly more likeable ($M = 40.80, SD = 6.64$) than their male counterparts ($M = 39.02, SD = 6.67$) with a small effect size, $F(1, 178) = 4.23, p = .041$, partial $\eta^2 = .023$. However, the expert witness profession had no statistically significant main effect on the likeability score, $F(1, 178) = 1.33, p = .250$. Female psychologists ($M = 42.39, SD = 6.98$) were rated as significantly more likeable than male psychologists ($M = 36.27, SD = 6.07$), $p < .001$, and female psychiatrists ($M = 39.28, SD = 5.97$), $p = .021$. On the other hand, male psychiatrists ($M = 41.54, SD = 6.23$) were rated as significantly more likeable than male psychologists ($M = 36.27, SD = 6.07$), $p < .001$.

Trustworthiness Subscale

There was a statistically significant interaction between the expert witness gender and profession on trustworthiness score with a medium effect size, $F(1, 178) = 13.93, p < .001$, partial $\eta^2 = .073$. Psychiatrists, regardless of gender, were rated as significantly more trustworthy ($M = 43.34, SD = 5.92$) than psychologists ($M = 40.48, SD = 8.16$) with a small effect size, $F(1, 178) = 7.69, p = .006$, partial $\eta^2 = .041$. However, there were no statistically significant differences in trustworthiness between male ($M = 41.91, SD = 7.51$) and female ($M = 42, SD = 6.95$) expert witnesses, $p = .813$. Additionally, male psychiatrists ($M = 45.08, SD = 4.69$) were rated as significantly more trustworthy than female psychiatrists ($M = 41.52, SD = 6.55$), $p = .013$, and male psychologists ($M = 38.45, SD = 8.48$), $p < .001$. Female psychologists ($M = 42.50, SD = 7.39$) were rated as significantly more trustworthy than male psychologists ($M = 38.45, SD = 8.48$), $p = .006$, but did not present any significant differences from female psychiatrists ($M = 41.52, SD = 6.55$), $p = .50$.

Confidence Subscale

Male expert witnesses ($M = 41.98$, $SD = 6.07$), regardless of profession, were rated as more confident than female expert witnesses with a medium effect size ($M = 38.34$, $SD = 7.59$), $F(1, 178) = 12.65$, $p < .001$, partial $\eta^2 = .066$. Psychiatrists, regardless of gender ($M = 41.2$, $SD = 6.79$), were also rated as more confident than psychologists with a small effect size ($M = 39.08$, $SD = 7.25$), $F(1, 178) = 4.27$, $p = .040$, partial $\eta^2 = .023$. However, there was no statistically significant interaction between the expert gender and profession on confidence score, $p = .603$. Furthermore, male psychiatrists ($M = 43.23$, $SD = 6.42$) were rated as significantly more confident than female psychiatrists ($M = 39.11$, $SD = 6.60$), $p = .004$, and male psychologists ($M = 40.61$, $SD = 5.41$) were rated as significantly more confident than female psychologists ($M = 37.55$, $SD = 8.51$), $p = .036$. No statistically significant differences in confidence were observed between male psychiatrists ($M = 43.23$, $SD = 6.42$) and male psychologists ($M = 40.61$, $SD = 5.41$), $p = .068$, or between female psychiatrists ($M = 39.11$, $SD = 6.60$) and female psychologists ($M = 37.55$, $SD = 8.51$), $p = .278$.

Knowledge Subscale

There was a statistically significant interaction between the expert witness gender and profession on knowledge score with a medium effect size, $F(1, 178) = 12.05$, $p = .001$, partial $\eta^2 = .063$. Male psychiatrists ($M = 45.10$, $SD = 3.83$) were rated as significantly more knowledgeable than female psychiatrists ($M = 42.07$, $SD = 6.57$), $p = .01$, and male psychologists ($M = 40.98$, $SD = 6.32$), $p = .001$. However, female psychologists ($M = 43.75$, $SD = 5.53$) were rated significantly more knowledgeable than male psychologists with a small effect size ($M = 40.98$, $SD = 6.32$), $p = .022$. Still, they did not differ from female psychiatrists ($M = 42.07$, $SD = 6.57$), $p = .159$. Overall, there were no statistically significant main effects of expert gender ($p = .874$) or profession ($p = .146$) on knowledge scores.

Jury Decision-Making (Determination of Guilt)

There were statistically significant, moderate negative correlations between jurors' perceptions of expert witness credibility variables and their decisions (Table 3). Negative correlations indicate that high scores on each subscale were associated with lower guilt ratings, i.e., a “non-guilty verdict”.

Table 3

Descriptive Statistics and Correlations for Study Variables (N = 182)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Determination of Guilt	5.30	2.51	–					
2. Likeability	39.90	6.69	-.32*	–				
3. Trustworthiness	41.96	7.22	-.32*	.78*	–			
4. Confidence	40.18	7.08	-.21*	.51*	.57*	–		
5. Knowledge	43.01	5.82	-.37*	.61*	.75*	.64*	–	
6. Total Credibility	165.05	22.93	-.36*	.85*	.91*	.80*	.86*	–

* $p < .01$

Assumptions for the hierarchical regression model were met (see Additional Results chapter). The complete model of WCS total score, controlled for the expert witness's gender and profession, to predict jurors' decision-making (Model 2) was statistically significant, $R^2 = .13$, $F(3, 178) = 8.74$, $p < .001$; adjusted $R^2 = .11$. This meant jurors were more likely to assign a “non-guilty” verdict for the defendant when the expert was considered highly credible regardless of their gender or profession, thus supporting our second hypothesis. The addition of the WCS total score to the prediction of jurors' decision-making (Model 2) led to a statistically significant increase in R^2 of .13, $F(1, 178) = 26.00$, $p < .001$. Table 4 details regression coefficients and each regression model.

Finally, a stepwise regression analysis revealed that knowledge was the only statistically significant predictor variable among the credibility subscales, adding an R^2 of .17, $F(4, 175) = 8.56$, $p < .001$, to the initial model of the expert witness's gender and profession.

Table 4

Hierarchical Multiple Regression of Credibility (WCS) Total Score Predicting Jurors' Decision Controlled for Expert Witness's Gender and Profession

Variable	Jurors' Determination of Guilt			
	Model 1		Model 2	
	B	β	B	β
Constant	5.36**		12.00**	
EW Gender	-.16	-.03	-.08	-.02
EW Profession	.04	.01	-.25	-.05
WCS total score			-.04**	-.36
R^2	.001		.13	
F	.10		8.74*	
ΔR^2	-.01		.11	
ΔF	.10		26.00*	

Note. $N = 182$; Model = "Enter" method in SPSS Statistics; B = unstandardised regression coefficient; β = standardised coefficient; R^2 = coefficient of determination; F = F-distribution (F-test); ΔR^2 = adjusted R^2 ; ΔF = adjusted F-distribution (F-test)

* $p < .05$, ** $p < .001$

Assumptions for the two-way ANCOVA were met (see Additional Results chapter). There was a statistically significant interaction between expert witness' gender and profession on jurors' determination of guilt, whilst controlling for jurors' perceptions of expert witness total credibility with a small effect size, $F(1, 177) = 4.52$, $p = .035$, partial $\eta^2 = .025$. However, there were no statistically significant main effects of expert witness gender ($p = .848$) and profession ($p = .519$) on jurors' determination of guilt. Pairwise comparisons showed that jurors were more likely to assign a

non-guilty verdict in line with female psychologists' recommendations ($M = 4.80$, $SD = 2.36$) than with female psychiatrists' recommendations ($M = 5.93$, $SD = 2.53$) with a small effect size, $F(1, 177) = 4.01$, $p = .047$, partial $\eta^2 = .022$. No other statistically significant pairwise comparisons were found.

Discussion

The findings of this study showed a statistically significant interaction effect of the expert witness's gender and profession (Consultant Psychiatrist vs Consultant Clinical Psychologist) on jurors' perceptions of overall credibility. Judged by ratings on the WCS, male psychiatrists were the most credible expert witnesses, followed by female clinical psychologists, female psychiatrists, and male clinical psychologists. The male psychiatrist's credibility ratings were around 15% higher than the male psychologist's. These findings supported our first hypothesis that there would be differences in jurors' perceptions of credibility between male and female clinical psychologist and psychiatrist expert witnesses testifying in the English and Welsh courtrooms.

In regard to the individual subscales of the WCS, we identified a statistically significant interaction effect of expert witness gender and profession on jurors' perceptions of likeability, trustworthiness, and knowledge. Male psychiatrists received the highest scores for perceptions of trustworthiness and knowledge, followed by female psychologists, female psychiatrists, and male psychologists. However, female psychologists were rated as the most likeable expert witnesses, followed by male psychiatrists, female psychiatrists, and male psychologists. Finally, the main effects of expert witnesses' profession and gender on jurors' perceptions of confidence were found, with males and psychiatrists being rated as more confident than females and clinical psychologists, respectively.

Credibility Differences Between Clinical Psychologists and Psychiatrists

The overall findings support the suggestion that psychiatrists, regardless of gender, are perceived as more credible than psychologists, which aligns with the perceived medical bias reported

in US studies and the importance of the expert's credentials on perceptions of credibility (e.g., Greenberg & Wursten, 1988; Wechsler et al., 2015). Leslie et al. (2007) argued that legal professionals in the UK may still not recognise clinical psychologists' expertise, training, scientific principles, and methods as rigorous enough to answer mental health and legal questions in the courtroom compared to psychiatry. Previous researchers have proposed strategies to increase court bias awareness for clinicians, especially psychologists, including presenting more objective, transparent, and impartial evidence in court; receiving appropriate training and relevant preparation from the case attorney; or using more structured evaluation methods to formulate their opinion (e.g., Corder et al., 1990; Neal & Brodsky, 2016).

Male psychiatrists were rated as significantly more credible than male psychologists. However, no statistically significant differences were found in the credibility of the female expert witnesses. Instead, female psychologists scored slightly higher than female psychiatrists on overall credibility. These findings may be explained by the relative gender makeup of the professions irrespective of workforces, which may contribute towards unconscious profession-related stereotypes about the characteristics of a typical expert witness. There is a significant gender imbalance within clinical psychology, with 80% of the registered clinical and forensic psychologists being females (HCPC, 2019; Johnson et al., 2020). The under-representation of males within the profession of clinical psychology may explain why the male expert witnesses were most affected by profession-related unconscious biases. On the contrary, gender is more balanced in psychiatry, with 48.2% of the consultant psychiatrists and 55.5% of the speciality doctors being females (Royal College of Psychiatrists, 2021); thus, such differences may not have been observed for female expert witnesses.

Psychiatrists, regardless of gender, were perceived to be significantly more trustworthy and confident than psychologists. This may partially explain the reported preferences of UK barristers in instructing psychiatrists over psychologists as expert witnesses' (Leslie et al., 2007). Moreover, psychiatrists being instructed more frequently could lead to greater familiarity, which may, in turn,

reinforce such attributes of confidence and trust. The findings further indicate that male psychiatrists were significantly more likeable, trustworthy, and knowledgeable than male psychologists.

Interestingly, the only statistically significant difference for female expert witnesses was perceptions of likeability, indicating that female psychologists were more likeable than female psychiatrists.

Confidence was the only credibility variable that did not differ between the professions. This perhaps indicates that differences in perceptions of confidence only occur when comparing experts of different genders.

In light of the social role theory, female stereotypical characteristics (e.g., likeability) may be more aligned with the role of psychologists, and male characteristics (e.g., confidence) may be more aligned with the role of psychiatrists (Eagly et al., 1992; Ednie, 1996). In our study, for example, female expert witnesses were rated as more likeable if they were clinical psychologists over psychiatrists, and male experts were rated as less likeable, trustworthy, and knowledgeable if they were clinical psychologists over psychiatrists. With this in mind, and psychiatrists generally being found to be more confident and trustworthy than clinical psychologists, we can note how the suggested stereotypical characteristics can be aligned with each profession (“likeable” female psychologist versus “confident and trustworthy” male psychiatrist) within the society and the legal and mental health systems (Eagly et al., 1992; Ednie, 1996).

Gender Differences and Credibility

Gender alone did not significantly affect how mock jurors perceived expert witness credibility. This finding is consistent with arguments by Neal (2014), who reviewed the empirical literature on expert witness gender effects and concluded that there is no linear relationship between the expert’s gender and jurors’ perceptions of credibility. The author implied that credibility is a multifaceted and fluid quality that depends on several variables’ interactive or contextual effects. Literature on gender expert witness credibility, predominately conducted in the US, indicates that male expert witnesses may be viewed as more credible than females if the female experts do not

meet gender role expectations (e.g., being likeable) or specific standards of competence and trustworthiness (Neal et al., 2012; Nagle et al., 2014; Riger et al., 1995; Schuller et al., 2005). Arguably, the female expert witnesses in this study were rated as trustworthy, likeable, and knowledgeable, thus meeting these role expectations (Eagly & Koenig, 2008), which may have impacted perceived credibility. It can also be hypothesised that gender differences may be more subtle among mental health expert witnesses in England and Wales compared to other western legal systems, such as the US, where the differences may be more profound (Larson & Brodsky, 2010; Schuller et al., 2005). However, more research is needed to support these statements.

Interestingly, gender differences emerged when we looked at interactions with each profession separately. In clinical psychology, female expert witnesses were significantly more credible than male experts. The opposite effect was observed in psychiatry, with male psychiatrists rated considerably more credible than female psychiatrists. This may reflect the possible gender stereotypical or unconscious biases, with psychiatry being viewed as predominantly male-dominant and clinical psychology as predominantly female, as previously highlighted. Nevertheless, this finding has broader importance in achieving equitable practice in the courtroom. Indeed, in medicine, recent data from the GMC showed that the overwhelming percentage of medical professionals who testify as expert witnesses (86%) are males, and only 11% of those are female (GMC, 2022). With this in mind, it is essential to consider the implications of the relative underrepresentation of medical women as expert witnesses in court. For clinical psychology, whilst equivalent figures for psychologists are unknown, the female-weighted gender balance in clinical psychology could mean more female than male psychologist expert witnesses, even if males are disproportionately represented as expert witnesses.

Regardless of their profession, female expert witnesses were significantly more likeable than their male counterparts. However, females were found to be significantly less confident than males. This aligns with findings from previous studies (Kaempf et al., 2015; Nagle et al., 2014; Neal et al.,

2012) and the reported stereotypical characteristics of each gender as described in social role theory (Eagly et al., 1992; Ednie, 1996). The results showed no gender differences in trustworthiness, knowledge, and total credibility scores. However, in clinical psychology alone, female psychologists were perceived as significantly more likeable, trustworthy, and knowledgeable than male psychologists. Conversely, men were rated as significantly higher in confidence. One possible implication for these differences is that the qualities of trustworthiness, likability, and trustworthiness may be more critical for a psychologist's testimony to be perceived as credible. Moreover, it is plausible that confidence alone does not lead to jurors perceiving experts as more credible.

The opposite phenomenon was observed in psychiatry. Male psychiatrists came across as significantly more trustworthy, confident, and knowledgeable than female psychiatrists, with no differences in likeability. Given the variation in each aspect of credibility, more research is needed to understand which specific components of credibility matter most in the courtroom. Expert witnesses' gender, profession, and potential biases that may influence credibility factors should be considered in future studies.

Jurors' Decision-Making

Our second hypothesis that mock jurors will be more likely to make decisions in line with a recommendation from a highly credible expert witness was also supported. Our results showed that expert witness credibility, accounting for the expert witness's gender and profession, can predict jury decision decision-making. In other words, jurors were likelier to assign a non-guilty verdict when a highly credible expert witness presented the clinical information and opinion. This aligns with other US studies, which indicate that credibility factors may predict legal outcomes (Brodsky et al., 2010; Cramer et al., 2014). Two dual process models, the elaboration likelihood model (ELM; Petty & Cacioppo, 1981) and the heuristic-systemic model (HSM; Chaiken, 1980), may have implications in these findings. For example, these models suggest jurors may rely on source-related factors (e.g.,

expert credentials) and message-related factors (e.g., the testimony's content) when making decisions.

Our findings indicated that the expert witness's gender and profession, considered independently, did not affect the ultimate jurors' decision-making, which supports arguments in the field (Brodsky et al., 2009; Neal et al., 2012; Neal, 2014). However, researchers who used a continuous scale, rather than a binary ("guilty"/"non-guilty"), to measure jurors' ultimate decisions showed that gender alone could influence decision-making (Cramer et al., 2009, 2011). Whilst we used a similar approach to Cramer et al. (2009, 2011), our results did not support their findings.

Nevertheless, in our study, an interaction between the expert witness's gender and profession influenced jurors' decisions around guilt. However, although we can hypothesise that gender and profession interact with each other in influencing jurors' decision-making, this effect was only statistically significant between professionals of the same (female) gender, indicating that jurors were more likely to give a non-guilty verdict to the defendant if the information came from a female clinical psychologist than a female psychiatrist. This observation may imply that the profession can become a more important mediating factor within female professionals, with those in female-dominant professions (e.g., clinical psychology) to be found to have a bigger influence on how jurors make decisions on legal and mental health matters. On the contrary, the profession seems to have a more subtle impact on male expert witnesses. However, this warrants more hypothesis testing.

Furthermore, looking at the role of each specific credibility component, knowledge was the only strong predictor of total credibility, meaning that jurors were more in agreement with highly knowledgeable expert witnesses. This is important because if an expert witness is not perceived as knowledgeable, this is likely to impact his perceived total credibility, which may influence the jurors' judgement.

Strengths and Limitations

To the best of the authors' knowledge, this is the first study examining the main and interaction effects of the expert witness profession (Psychologist/Psychiatrist) and gender on mock jurors' perceptions of credibility and decision-making in England and Wales. This study employed a robust video-based experimental design with a relatively large sample size, which attempted to replicate the court setting and present an expert witness testimony. This is a strength, considering that previous research on mock jurors has highlighted several methodological limitations of vignette-only manipulation or attitude-based methodologies. In addition, a widely used and validated scale adds scientific validity and makes these results comparable with other studies (WCS; Brodsky et al., 2010).

Another strength of our study was the recruitment of a UK representative sample. Most previous mock juror studies on expert witness credibility have been criticised for lacking representative samples (i.e., including only students). Interestingly, recent attitude-based investigations with real serving jurors indicated that unconscious biases widely reported in mock jury research (e.g., sexual or rape offences) might be misleading and not translated into actual courtroom behaviour (Thomas, 2020). Indeed, Thomas (2020) argued that mock juries could not represent real jury service because real-serving jurors do not volunteer to participate in jury service. However, the research with real-serving jurors is still limited, and there is evidence that mock juries may not significantly differ from real juries (Bornstein, 1999). With this in mind, future research could consider recruiting real-serving jurors or people invited to participate in jury service, and their service was cancelled ('unused jury').

The methodological limitations of using online surveys should also be considered. As Flick et al. (2022) highlighted, it is difficult to determine whether participants have attended the whole video, fully understood the information presented in the testimony or answered these questions correctly by chance. It is also possible that some participants may be unaware of the differences in expertise and

roles between the two professions. For example, Leslie et al. (2007) pointed out that criminal barristers in the UK thought of psychologists as having expertise in personality traits, behaviour, and functional deficits and psychiatrists to diagnose and treat mental illness (e.g., schizophrenia). Hence, future research could explore whether brief training or relevant information during the testimony or cross-examination (Flick et al., 2022) could help participants better understand each practitioner's positions and expertise.

Additionally, the presence of a focus group helped select the actors of the study to minimise potential selection bias. Both experts in our study were also considered consultants who may be perceived as having significant experience testifying in court. Experts' perceived seniority derived from these credentials would be expected to diminish gender- or profession-based biases. However, the findings still revealed such biases. Although our manipulation of gender and profession affected jurors' perceptions of credibility, participants may have also relied upon other information in making their decision, such as the expert's scientific language, detailed formulation, or credentials. Future research could explore whether expert witnesses with lower credentials (e.g., newly qualified expert) or a control condition (i.e., "mental health professional") would be subject to more significant biases. Equally, future researchers could use standardised videos or multiple actors simultaneously to control for other personal characteristics (beyond gender) that may contribute to credibility variations.

Interestingly, participants' characteristics, such as age, gender, ethnicity, education, and employment, did not significantly change any results. Flick et al. (2022) found that participant gender mediated the relationship between expert witnesses' credentials and mock jurors' perceptions of credibility in a sexually hostile work environment case. The selection of a neurodevelopmental condition or a criminal arson case, as well as a UK sample, perhaps did not allow our findings to be influenced by participant characteristics. However, there might also be other confounders, such as the expert's age, race, ethnicity, culture, or other credentials (e.g., university of studies, training,

years of experience, or publications), that were not investigated. Then again, participants' stigmatised beliefs about the two professions and gender were also outside the scope of this study. Thus, future research could examine the role of such confounders, considering stigmatised beliefs.

Linked to these, it is important to consider the type of crime (i.e., arson) and diagnosis (i.e., LD and ADHD) of the defendant when interpreting the findings of this study. For instance, some studies have indicated the potential that expert witnesses of different genders and mental health professions can be perceived as having different expertise in different cases and mental health issues (Adshead, 2005; Corder et al., 1990; Helgeson, 2009; Leslie et al., 2007; McKimmie et al., 2004; Memon & Shuman, 1998; Neal, 2014; Price et al., 2004; Schuller & Cripps, 1998; Schuller et al., 2001; Shapiro et al., 2015; Slobogin, 1999; Swenson et al., 1984). It is, therefore, likely that using a different type of crime or mental health difficulty may have a different effect on the impact of the expert witness's gender and profession on participants' perceptions of expertise and credibility.

Implications

The current findings have clinical and legal applications concerning the role of the broader clinical psychology and psychiatry bodies in the English and Welsh legal systems. If clinicians are not perceived as credible, then the importance of their message may be lost in the decision-making process. Alternatively, high credibility may mean jurors or legal professionals do not pay enough attention to the content of the message. This research is equally relevant to the client as it can make a difference between guilty or not, how the jurors make legal decisions, and how mental health issues are addressed in the courtroom.

Several implications can be derived from these results. Male psychologists and female psychiatrists should be aware of any unconscious biases of credibility that jury members may hold against them when they take the expert witness stand. This also applies to any legal professional involved in expert witness work. Although US studies have indicated a tendency for psychiatrists to

be perceived as more credible than psychologists, our findings, using a UK sample, support this claim predominantly in an interaction with the expert's gender.

This study highlights a need for mock and, arguably, real-serving jurors to participate in training and receive guidelines about clinical psychology and psychiatry's expertise, training, and scientific bases. Jurors, legal professionals, and society as a whole need to be aware of the contribution of each mental health profession to the criminal justice system and possible unconscious biases. Furthermore, expert witnesses must be mindful of the suggested unconscious biases when preparing and delivering their testimony. It is unclear whether training of both expert witnesses and jurors could mitigate these biases. However, it is important for expert witnesses to take mitigating action against potential biases, e.g., by allowing time to explain their professional role and expertise. Accredited training in providing evidence and clinical opinion in court could also be valuable in improving the credibility of the expert testimony (Leslie et al., 2007; Neal & Brodsky, 2016). Such training should be tailored to the individual expert's strengths and weaknesses. Jurors might also benefit from becoming more aware of potential biases and taking actions to mitigate them by increasing familiarity with the expert evidence they are due to hear. Another option might be for courts to take some more direct role; thus, before evidence is heard, the judge could explain to the jury why the person has been appointed an expert and their expertise.

Finally, expert witnesses can provide a microcosm of how these two professions work in the real world and influence society's perceptions of cultural norms and mental health. Hence, it is important for expert witness testimonies to be more diversified and representative of the professions. Ultimately, all expert witnesses, regardless of gender or profession, were rated relatively highly credible by the participants. This implies that both professional bodies are recognised and perceived as credible scientific and clinical information sources in criminal trials in England and Wales.

Conclusion

This study provides the first empirical evidence for the interaction effect of expert witness gender and professional type (Clinical Psychologist/Psychiatrist) on mock jurors' perceptions of credibility in England and Wales. Overall, male psychiatrists received the highest scores for most credibility variables, followed by female clinical psychologists, female psychiatrists, and male clinical psychologists. As hypothesised, mock jurors tended to make decisions in line with a highly credible expert witness. The findings of this study should be carefully interpreted based on the limitations mentioned above. However, research on expert witness credibility is scarce in the UK, and this study provides a significant contribution. Therefore, more research is needed to understand the magnitude of any potential unconscious biases that jury members may hold for psychologists or psychiatrists of different genders testifying as expert witnesses. Notwithstanding, we recommend that psychologists and psychiatrists receive expert witness preparation and appropriate training, emphasising aspects of credibility and effective communication. Similarly, jurors and members of the public participating in legal proceedings may benefit from further training on unconscious biases related to gender stereotypes and mental health expertise. Finally, understanding how jurors cognitively process and use legal or clinical information in the courtroom will help clinicians and legal professionals communicate evidence with clinical and legal implications more effectively.

Declaration of Conflicts of Interest

EK, IE, and PB declare no conflicts of interest. The Doctorate in Clinical Psychology at the University of East Anglia supported this study.

Data Availability Statement

The data of this study can be available from the authors upon request.

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Chapter 5. Additional Results

This chapter details supplementary results and information on the analyses carried out in the empirical project (Chapter 4).

Assumptions for Between-Subjects Two-way ANOVA

A between-subjects two-way ANOVA was performed to investigate the effects of the expert witness's gender and profession on jurors' perceptions of credibility (WCS total score). Relevant assumptions were met. There were no significant outliers greater than three box lengths from the edge of the box, as assessed by inspection of the boxplots. Variances were homogeneous, as assessed by Levene's test for equality of variances, $p = .132$. Data were assessed for normal distribution by the Kolmogorov-Smirnov test. Data were normally distributed for the 'male psychologist', $p = .071$, and 'male psychiatrist', $p = .20$, groups. Data were not normally distributed for the 'female psychiatrist', $p = .009$, and 'female psychologist', $p = .010$, groups. Similarly, assumptions of normality were violated for some of the subscales. However, given our relatively large sample size and that our groups were similarly negatively skewed, we decided to proceed with the two-way ANOVA. Generally, ANOVAs are considered fairly 'robust' to deviations from a normal distribution (Maxwell & Delaney, 2004).

The analyses revealed statistically significant interaction effects for most of the variables considered. Therefore, further analysis of the simple main effects of the expert witness profession and gender on jurors' perceptions of credibility variables was performed (Maxwell & Delaney, 2004; Wickens & Keppel, 2004). Pairwise comparisons were run with reported 95% confidence intervals and p-values Bonferroni-adjusted within each simple main effect.

Effects of Expert Witness Gender and Profession on Credibility Variables

Table 5 shows the main and interaction effects of the expert witness profession and gender on all credibility variables. Table 6 shows the pairwise comparisons for each credibility variable.

Table 5

Between-Subjects Effects of Expert Witness Gender and Profession on the Total Credibility Score and Credibility Subscales

Variable	SS	df	MS	F	P	η^2
Total Credibility						
Gender	110.33	1	110.33	0.23	.635	.001
Profession	2367.63	1	2367.63	4.86	.029	.027
Gender X Profession	5928.12	1	5928.12	12.18	.001	.064
Likeability						
Gender	168.79	1	168.79	4.23	.041	.023
Profession	53.26	1	53.26	1.33	.250	.007
Gender X Profession	796.37	1	796.37	19.94	.000	.101
Trustworthiness						
Gender	2.66	1	2.66	0.06	.813	.000
Profession	362.71	1	362.71	7.69	.006	.041
Gender X Profession	657.38	1	657.38	13.93	.000	.073
Confidence						
Gender	587.06	1	587.06	12.65	.000	.066
Profession	198.37	1	198.37	4.27	.040	.023
Gender X Profession	12.58	1	12.58	0.27	.603	.002
Knowledge						
Gender	0.81	1	0.81	0.03	.874	.000
Profession	67.75	1	67.75	2.13	.146	.012
Gender X Profession	383.70	1	383.67	12.05	.001	.063

Note. SS = Type III Sum of Squares; df = Degrees of Freedom; MS = Mean Square; p = Statistical Significance; η^2 = Partial Eta Squared

Table 6*Pairwise Comparisons for Each Credibility Subscale and Total Credibility Score*

Variable		V1	V2	Mean Difference (V1 – V2)	Std. Error	Sig.	95% CI for Difference	
							Lower	Upper
Likeability								
Male	Psychiatrist	Psychologist		5.27	1.32	.000	2.67	7.87
Female	Psychiatrist	Psychologist		-3.10	1.33	.021	-5.73	-.47
Psychologist	Male	Female		-6.11	1.35	.000	-8.77	-3.46
Psychiatrist	Male	Female		2.26	1.30	.085	-.314	4.83
Total	Psychiatrist	Psychologist		1.10	.94	.250	-.767	2.93
	Male	Female		-1.93	.94	.041	-3.78	-.077
Trustworthiness								
Male	Psychiatrist	Psychologist		6.63	1.43	.000	3.80	9.46
Female	Psychiatrist	Psychologist		-.98	1.45	.500	-3.84	1.88
Psychologist	Male	Female		-4.05	1.47	.006	-6.94	-1.16
Psychiatrist	Male	Female		3.56	1.42	.013	.77	6.36
Total	Psychiatrist	Psychologist		2.83	1.02	.006	.814	4.84
	Male	Female		-.242	1.02	.813	-2.25	1.77
Confidence								
Male	Psychiatrist	Psychologist		2.62	1.42	.068	-.19	5.42
Female	Psychiatrist	Psychologist		1.56	1.44	.278	-1.27	4.40
Psychologist	Male	Female		3.07	1.45	.036	.20	5.94
Psychiatrist	Male	Female		4.12	1.41	.004	1.35	6.90
Total	Psychiatrist	Psychologist		2.09	1.01	.040	.095	4.08
	Male	Female		3.59	1.01	.000	1.60	5.59
Knowledge								
Male	Psychiatrist	Psychologist		4.13	1.18	.001	1.80	6.45
Female	Psychiatrist	Psychologist		-1.69	1.19	.159	-4.03	.66
Psychologist	Male	Female		-2.77	1.20	.022	-5.15	.40
Psychiatrist	Male	Female		3.04	1.16	.010	.74	5.34
Total	Psychiatrist	Psychologist		1.22	.84	.146	-.431	2.87
	Male	Female		.133	.84	.874	-1.52	1.79
Total Credibility								
Male	Psychiatrist	Psychologist		18.64	4.61	.000	9.55	27.73
Female	Psychiatrist	Psychologist		-4.20	4.65	.367	-13.38	4.98
Psychologist	Male	Female		-9.86	4.70	.037	-19.15	-.58
Psychiatrist	Male	Female		12.98	4.55	.005	4.00	21.96
Total	Psychiatrist	Psychologist		7.22	3.27	.029	.76	13.68
	Male	Female		1.56	3.27	.635	-4.90	8.02

Note. Sig. = significance

Assumptions for Multiple Hierarchical Regression Model

Preliminary analyses showed a linear relationship between each credibility subscale and jury decisions, normally distributed data, and no significant outliers. A hierarchical multiple regression analysis was conducted to test if adding the jurors' perceptions of the expert witness's overall credibility improved the prediction of the jurors' decision-making (i.e., determining guilt) over and above the expert witness's gender and profession alone. Assumptions were checked and met. A linear relationship existed between the continuous variable (total credibility) and the outcome variable (jurors' decision-making). Homoscedasticity was assessed by visual inspection of partial regression plots of the studentised residuals versus unstandardised predicted values. Residuals were independent, as measured by the Durbin-Watson statistic of 1.814. There was no evidence of multicollinearity (e.g., tolerance values greater than 0.1), studentised deleted residuals (e.g., ± 3 standard deviations and above), leverage values higher than 0.2, or values for Cook's Distance more significant than 1. Visual inspection of the Q-Q Plot indicated that data were normally distributed.

Assumptions for Between-Subjects Two-way ANCOVA

As described, a two-way ANCOVA was conducted to examine the effects of expert witness gender and profession on jurors' decision-making (determination of guilt) after controlling for jurors' perceptions of the expert witness's overall credibility. There was a linear relationship between juror's perceptions of expert witness total credibility and jurors' determination of guilt for each group, as assessed by visual inspection of a scatterplot. There was homogeneity of regression slopes as determined by a comparison between the two-way ANCOVA model with and without interaction terms, $F(3,174) = .76, p = .52$. There was homoscedasticity within groups, as assessed by visual inspection of the studentised residuals plotted against the predicted values for each group, and variances were homogeneous, as assessed by Levene's test of homogeneity of variance ($p = .669$). There were no outliers greater than ± 3 standard deviations (as assessed by no cases with studentised

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residuals), no leverage or influential points (as assessed by leverage values and Cook's distance, respectively), and students residuals were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$).

Chapter 6. Discussion and Critical Evaluation

This chapter aims to summarise and critically evaluate the key findings of the systematic review and the empirical research study presented in this thesis portfolio. Clinical, legal, and research implications and reflections will be considered in the discussion.

Summary of Main Findings

Systematic Review

The systematic review findings highlighted the dearth of published studies assessing the effectiveness of firesetting interventions for adults who deliberately set fires. Over the past two decades, there have been some efforts, mainly in the United Kingdom (UK), to address this gap in the evidence base and to evaluate the effectiveness of specialist psychological interventions for adult firesetters. However, there is a sparsity of high-quality published studies in the literature. To date, there are very few available peer-reviewed evaluation studies ($n = 15$), most of which have been conducted in the UK (73.33%). The limited evidence base was predominantly dominated by single-case (46.67%) or small-scale studies (33.33%). Of those, only 20% of the studies were rated with high methodological quality standards, with 60% reporting poor methodological quality and a high risk of bias. Concerning treatment modality, the majority of studies involved group interventions (73.33%) in line with the Cognitive Behaviour Therapy (CBT) framework (66.67%).

The available specialist firesetting interventions indicate that CBT was effective in improving fire-specific (i.e., problematic interests, attitudes, and associations with fire) and relevant psychological outcomes, including anger, anxiety, social skills, self-esteem, coping strategies and offence-specific or antisocial attitudes in varied cohorts of firesetters (Gannon et al., 2015; Tyler et al., 2018). Another study reported a large effect size of an integrated fire safety education programme in reducing recidivism rates among adult firesetters (Pearson et al., 2022). However, most studies were conducted in restrictive secure environments (e.g., prison, forensic mental health,

and psychiatric inpatient services), recruited highly selected samples (e.g., with mental health difficulties and repeated firesetting) and were resource-intensive (e.g., lengthy duration and significant clinical time from staff). While there is still a limited understanding of the effects of the available interventions in reducing firesetting behaviour in less restrictive environments, it is recognised that adult firesetters have complex needs and need evidence-based offence-specific approaches.

Overall, 358 adults with a history of firesetting were sampled. Most evaluation studies used small cohorts of individuals, heterogeneous samples, and resource-intensive interventions (e.g., requiring significant clinical time from staff, training, and supervision). None of the interventions was replicated across countries, different settings (e.g., community) and with demographically diverse samples (e.g., ethnicity). Additionally, despite the specialist CBT group interventions showing promising results in reducing important fire-specific outcomes (i.e., interests or attitudes about fire), there is a considerable lack of reliable and long-term follow-up assessments in a non-secure environment (i.e., in the community; Gannon et al., 2015; Tyler et al., 2018). Thus, it is hard to determine whether these effects can be translated into behavioural change and whether the existing specialist firesetting interventions can effectively reduce the risk of recidivism. Finally, no comparisons between individual and group interventions or between completers and non-completers have been made. This, alongside the notable lack of reported adverse effects of their interventions, raises significant ethical and professional concerns (Parry et al., 2016).

Empirical Project

The findings of this study supported the hypothesis that differences in jurors' perceptions of credibility exist for male and female clinical psychologist and psychiatrist expert witnesses testifying in the English and Welsh courtrooms. Statistically significant interaction effects showed that male psychiatrists received the highest scores for perceptions of trustworthiness, knowledge, and overall credibility, followed by female clinical psychologists, female psychiatrists, and male clinical

psychologists. A statistically significant interaction effect was also found for perceptions of likeability. However, female clinical psychologists were rated as the most likeable expert witnesses, followed by male psychiatrists, female psychiatrists, and male clinical psychologists. Finally, whilst there was no interaction effect for confidence, there was a main effect of both profession and gender, with the male psychiatrist again receiving the highest overall score.

Regarding the main effects, psychiatrists, regardless of gender, were perceived as significantly more trustworthy, confident, and credible than clinical psychologists. Pairwise comparisons indicated that male psychiatrists were significantly more likeable, trustworthy, knowledgeable, and overall more credible than male psychologists. Notably, the only statistically significant difference for female expert witnesses was perceptions of likeability, indicating that female psychologists were more likeable than female psychiatrists. Gender alone did not significantly affect how mock jurors perceived expert witnesses' overall credibility. Regardless of their profession, female expert witnesses were significantly more likeable and less confident than male experts. Interestingly, gender differences emerged when we looked at interactions with each profession separately. In clinical psychology, female expert witnesses were significantly more likeable, trustworthy, knowledgeable, and credible than male experts. The opposite phenomenon was observed in psychiatry. Male psychiatrists came across as significantly more trustworthy, confident, knowledgeable, and credible than female psychiatrists, with no differences in likeability.

Finally, the findings of the study also showed that mock jurors were more likely to make decisions in line with a recommendation from a highly credible expert witness. This implies that jurors were likelier to assign a non-guilty verdict when a highly credible expert witness presented the clinical information and opinion. These results indicated that gender and profession, considered independently, did not affect jurors' decision-making. Nevertheless, an interaction effect between these two variables was found to have a statistically significant effect on jurors' decision-making

with a small effect size. All these findings align with broad findings from US studies, which indicate that credibility factors may predict legal outcomes (Brodsky et al., 2010; Cramer et al., 2014).

Strengths of the Thesis Portfolio

Systematic Review

The main strength of this review is that it provides a systematic and comprehensive narrative synthesis of all published studies on adult firesetting interventions, updating the most recent review conducted in 2012 (Curtis et al., 2012). This research topic has been considered neglected in the literature (Gannon et al., 2022; Tyler et al., 2019). Therefore, the current systematic review contributes to this research gap and helps understand practical challenges in delivering and evaluating offence-specific interventions in adult firesetters. More importantly, this review used a wide range of search terms to capture the varied descriptions of firesetting used in the literature (Collins et al., 2021; Johnston & Tyler, 2022), which broadened the search strategy of previous reviews (e.g., Curtis et al., 2012). As part of the critical appraisal of the methodology quality, this review highlighted fundamental methodological limitations that need addressing in future research, such as lack of experimental control and randomisation, small samples, lack of validated evaluation methods and restricted samples (e.g., mental health inpatients). This could guide future practitioners and researchers to employ more robust and effective evaluations of firesetting interventions. Finally, a comprehensive review of the resources required for implementing firesetting interventions and ways of improving cost-effectiveness across the services was provided. An emphasis has also been placed on understanding the effectiveness of available firesetting interventions in improving critical psychological vulnerabilities, including anger, emotion regulation, social competency, self-esteem, coping and relapse prevention strategies.

Empirical Project

This study contributes to the expert witness credibility research by providing empirical evidence of the effects of male and female psychiatrist and clinical psychologist expert witnesses on mock jurors' perceptions of credibility. Research on expert witness credibility in England and Wales is scarce. Therefore, this study's findings provide a significant contribution to this area. Additionally, this study employed a robust video-based quantitative experimental design with a relatively large UK representative sample. This also addresses some previously reported methodological limitations, such as vignette-only manipulation, survey-based methodology, unrepresentative samples (i.e., students only) or qualitative investigations. Furthermore, the study employed a widely used and validated scale (WCS; Brodsky et al., 2010) to add scientific validity and enable comparisons between studies. Finally, a focus group was used to help select the actors of the study to minimise potential selection bias.

Limitations of the Thesis Portfolio

Systematic Review

Most of the included studies have failed to meet several methodological quality requirements and indicated a high risk of bias. For example, most studies lacked a comparison group, control for confounding variables (e.g., time spent in incarceration/prison, medication, or engagement with other interventions), or reliable evaluation methods (i.e., validated psychometric measures, follow-up assessments, or behavioural changes). This raises a concern as the evidence base for adult firesetting interventions appears fraught with confounding variables, methodological flaws, and poor internal and external validity. Indeed, no randomised control trial has been published in the literature. Although there are practical issues with randomising individuals within the criminal justice system, it is difficult to determine whether the effects of the psychological interventions were mediated by

other confounding factors, such as residing in an inpatient setting or receiving another multidisciplinary team (MDT) interventions.

Given the considerable heterogeneity and variation in the reported interventions, study designs, outcome measures, and data analyses, it is difficult to compare these interventions. Therefore, the scope for generalising these findings and concluding the effectiveness of the available firesetting interventions is limited. This poses difficulties to the clinicians and service providers who rely on evidence-based practice and calls for further evaluation of interventions and dissemination of such outcomes.

Empirical Project

The methodological limitations of using online surveys should be considered. It is impossible to know whether participants attended the video, understood the information presented in the testimony, completed the study alone, or answered the manipulation check questions by chance (Flick et al., 2022). Although our manipulation of gender and profession affected jurors' perceptions of credibility, participants may have also relied upon other information in making their decision, such as the expert's scientific language, detailed formulation, or credentials. Similarly, other potential confounders, such as expert witness age, race, ethnicity, culture, or other credentials (e.g., university of studies, training, years of experience, or publications), might be out of the scope of this study to investigate.

Clinical and Legal Implications

Systematic Review

Several conclusions can be derived from these findings, guiding future clinical and legal practice. First, CBT interventions, delivered predominately in a group format, may be effective in reducing firesetting-specific factors (i.e., interest or beliefs about fire) and secondary psychological risk factors (i.e., anger, antisocial attitudes, or anxiety) in adult firesetters residing in prisons or

forensic mental health inpatient services (Gannon et al., 2015; Taylor et al., 2002; Tyler et al., 2018). Unfortunately, the results cannot be translated into reliable behavioural changes in non-restrictive and less controlled environments (e.g., in the community). A fire safety education programme has also shown promising outcomes, but more research is needed to determine its effectiveness (Pearson et al., 2022).

Despite the development of a few promising standardised specialist firesetting interventions (Gannon et al., 2015; Tyler et al., 2018) and comprehensive theoretical frameworks (Multi-Trajectory Theory of Adult Firesetting, M-TTAF; Gannon et al., 2012), availability and treatment provision for adult firesetters within the criminal justice systems is limited. Thus, it is possible that adults facing charges for arson-related offences might not get access to effective, safe, and evidence-based interventions across the criminal legal system (e.g., prison, probation, forensic community, or secure mental health services). This places several barriers for clinicians and legal professionals to develop and deliver effective care and sentence planning for adults who face charges of deliberate firesetting. Hence, clinicians (e.g., psychiatrists or psychologists) or legal professionals might be disadvantaged by the lack of an evidence-based therapeutic approach (Tyler et al., 2019). This is also relevant to the clinicians who are frequently asked to provide evidence to tribunals or parole boards that the risk factors associated with the firesetting risk have been reduced or managed (Tyler et al., 2019). More importantly, the lack of evidence-based approaches disadvantages those individuals in a hospital order or custodial sentence who require a special and robust care pathway to ensure their recovery.

Aside from the apparent need for evidence in treatment provision, it is vital to be aware of the resources required to implement specialist interventions for adult firesetters. Practical considerations included committed and lengthy clinical time from staff, MDT collaboration, standardised training, and supervision. Another consideration is that the available specialist firesetting interventions have been tested with individuals with a repeated history of firesetting behaviours, varied clinical needs,

and several other offences. This implies that most participants had significant psychological and criminological difficulties, which might have contributed to them being benefited from the interventions. In addition, most participants volunteered and were willing to engage with the interventions. This raises a concern about whether these interventions could benefit firesetters with a less severe history of firesetting, including a single incident (Winters et al., 2022) or individuals who might be less motivated. At the same time, other studies described using a token economy approach to facilitate participant engagement (Rice & Chapling, 1979), which may raise questions about the participants' intrinsic motivation to engage in the interventions.

The practical implications of the group interventions should also be considered. For instance, the authors of two studies noted that female participants found it hard to engage with mixed-gender (Hall, 1995) or single-gender (Annesley et al., 2017) groups. Adverse effects associated with group-based interventions were also reported in some studies, such as justifying and rationalising (instead of challenging) their firesetting behaviours, escalation of aggression, dropping out, being secluded, clinically significant deterioration and transfer to another setting (Annesley et al., 2017; Ashworth et al., 2017; Gannon et al., 2015; Taylor et al., 2006). This raises ethical concerns about the risks associated with group-based interventions, such as maladaptive learning of firesetting behaviour from listening to other group members' stories or motives for firesetting, vicarious arousal or vicarious traumatisation (Parry et al., 2016; Taylor et al., 2006; Ware et al., 2009). Given the limited focus on recording and exploring adverse outcomes associated with those interventions, it is unclear whether group-based firesetting interventions have the possibility to harm certain participants. Parry et al. (2016) highlighted the need for better recording and reporting adverse outcomes associated with psychological therapies, often neglected in research. More importantly, the differences in the effectiveness between individual and group-based intervention, or their combination, and their ethical and cost-effective implications are yet to be established (Davies, 2019)

There is a notable lack of evidence of therapy being adapted to target adult firesetters with LD or autism. The larger studies available have also excluded individuals with LD who are highly prevalent among firesetters (Collins et al., 2021; Lees-Warley & Rose, 2015). This might imply that adults with LD or autism may be overlooked or less encouraged to access such specialist interventions, or their firesetting behaviours are tackled at a younger age. Contrary to expectation, there is little emphasis on treating people in the community, making it hard to meet the needs of those who might not be admitted to secure mental health or prison services.

Empirical Project

The main implications of the empirical study concern the recognition of the two professional bodies (i.e., clinical psychology and psychiatry) within the English and Welsh legal systems. Matching skills and competencies to the legal questions being asked is necessary. In doing so, psychologists' role in the courts seems less well-structured and defined than that of psychiatrists, as it depends more on the case's circumstances. Clinicians, especially the most disadvantaged (i.e., male psychologists and female psychiatrists), need to be aware of any unconscious biases of credibility that jury members may hold when they testify in court as expert witnesses. The study results highlight a clear need for mock and, arguably, actual jurors to participate in training and receive guidelines about clinical psychology and psychiatry's expertise, training, and scientific bases. Jurors, legal professionals, and society as a whole need to be aware of the contribution of each mental health profession to the criminal justice system and possible unconscious biases.

It is unclear whether training of both expert witnesses and jurors could mitigate these biases. However, it is important for expert witnesses to take mitigating action against potential biases, e.g. by allowing time to explain their professional role and expertise. Accredited training in providing evidence and clinical opinion in court could also be valuable in improving the credibility of the expert testimony (Leslie et al., 2007; Neal & Brodsky, 2016). Understanding such processes may

help expert witnesses, jurors, and legal professionals (e.g., attorneys or judges) to make informed decisions and consider other facts that might impact the recovery or treatment provision for someone who might be convicted of a serious offence, such as arson. It is important to know how jurors make decisions and what the implications of their decisions would be. For instance, suggesting psychological or other interventions for adult arsonists might not be ideal if no strong evidence supports their effectiveness.

Future Research Directions

Several unanswered questions remain regarding the journey and treatment provision for adults who engage in firesetting behaviour within the criminal justice system. In addition, the literature on both adult firesetting interventions and expert witness credibility is relatively limited. Hence, we call for more research to answer specific questions.

In the adult firesetting literature, future research should employ larger longitudinal prospective studies with robust experimental control comparisons (e.g., randomisation) and follow-up assessments with reliable recidivism data. Performing robust statistical analyses in experimentally controlled studies would allow a meta-analytic synthesis of the effect sizes of such interventions. There is some evidence for CBT, but no comparisons between different types of treatments (e.g., CBT versus fire safety education) have been made to understand the effectiveness. Linked to this is a need for cost-effective comparisons between individual and group interventions while controlling for environmental or other therapeutic factors of the restrictive environments and exploring iatrogenic harm and potential adverse effects associated with these interventions (Parry et al., 2016). More importantly, there is a call for more international collaboration to conduct multi-site research with more socioeconomically and ethnically diverse and representative samples in inpatient or secure environments and the community. We believe that applying validated or adapted evaluation methods

and reliable recording firesetting incidents systems will help assess the effectiveness of adult specialist firesetting interventions.

In expert witness credibility, future research could consider using expert witnesses with lower credentials (e.g., newly qualified experts), control conditions (i.e., "mental health professional"), more robust manipulation checks, or multiple actors to control for other characteristics (beyond gender), which may contribute towards the credibility ratings. Other confounding variables could also be considered, including ethnicity, race, varied qualifications, or stigmatised beliefs toward the two mental health professions. While this study presented an alleged case of arson of a young adult with a LD, future directions could explore if the credibility of mental health experts may be affected by the context of the case by using different types of offences or diagnoses. Finally, the research in this area is relatively limited, especially in England and Wales. Thus, there is a scope for a wide range of research and hypothesis testing.

Overall Reflections

The composition of this thesis portfolio has made me more aware of the challenges of providing effective and safe assessments and interventions to individuals within the criminal justice system. More importantly, it made me more critical of how the legal and mental health systems work and collaborate. It is notably surprising how people in power, i.e., expert witnesses, can influence judgement and decisions made by members of the public, which in turn can have significant consequences for the individuals.

Viewing legal decisions being influenced by perceptions of credibility and bias towards expert witness gender or credentials has made me more critical of legal decision-making and the role of the wider bodies of clinical psychology and psychiatry within the criminal justice system. Moreover, individuals who deliberately set fires might have their first contact with the criminal justice system before they access recovery-focused treatment. Therefore, decisions at this stage

should be well-informed and unbiased. This raises significant questions about how practitioners and researchers can intervene to limit potential unconscious biases or make people aware of these in decision-making, considering that we will never be able to make completely unbiased opinions to some extent. Regardless, making wrong decisions can significantly impact those who will be offered treatment and those who will not be offered any intervention.

Additionally, the limited research on firesetting interventions raises significant professional, ethical, and practical concerns about how the needs of this population are met or treated within the criminal justice system. Linked to this, the current research highlighted the little understanding of “what works” and “for whom”, especially for individuals with mental health difficulties or disabilities within the criminal justice system (Sambrooks & Tyler, 2019). This raises a concern about how decisions are made about mental health issues and effective care pathways when individuals are in need. More importantly, there is still a long way to go to understand what keeps people offending and stuck in their recovery journey and how their needs can be met best. These pose real difficulties to the professionals who rely on the evidence base to offer the best care for individuals with clinical and criminological issues.

Aside from the apparent benefits of evidence-based assessments and care for clinicians, current practices highlight the need for more research and evidence-based approaches for individuals who present with complex needs. A cost-effective approach should focus on intervening early and raising awareness of fire safety or mental health in the community before the individuals reach a crisis. The expert witnesses reflect the societal norms and biases that members of the public hold for mental health professions in general. Such biases may also be translated into diverse workforces and significantly impact individuals’ care pathways and recovery. This, in turn, makes me wonder about the application and credibility of the wider bodies of clinical psychology and psychiatry in different workforces and how certain practitioners, i.e., male psychologists and female psychiatrists, are mostly disadvantaged by unconscious biases. Reflecting on the significant underrepresentation of

males in clinical psychology makes me think about how unconscious biases about masculinity and feminism may prevent individuals from pursuing careers in certain mental health professions.

Moving on, I wonder whether mental health professions, especially clinical psychology, would benefit from being more diversified and representative to challenge some of these biases or possible stigmatised views.

Finally, this thesis portfolio has enriched my insight into the practical difficulties of conducting research within the criminal justice system, such as facilitating engagement, controlling for confounding variables, or collecting reliable data. Ethical considerations about withholding treatment from individuals who need it, offering treatment to certain environments or typologies of participants (e.g., with 'complex' needs), providing interventions with limited evaluation and with the possibility of causing harm to the receivers, and refusing referrals because of the limited available information made me more critical of the inclusion criteria for research and offence-specific interventions. Underrepresented samples of individuals with lower power (i.e., adults with disabilities or autism) might also be overlooked from research. Hence, it is important to diversify and represent different cohorts of individuals whose voices might not be heard enough.

From a different angle, psychologists have fought hard to raise the credibility of the wider profession within the legal system over the past decades. I wonder how the lack of evidence-based psychological interventions could make psychologists taken less seriously compared to medical colleagues. All these considerations play a crucial role when a practitioner decides to take the expert witness stand, prove themselves as credible, and provide evidence-based and well-informed recommendations to individuals in need.

Overall Conclusion

The current thesis portfolio addressed questions with significant clinical, legal, and research applications. The overall findings provide novel contributions to the literature on criminal firesetting

interventions for adult firesetters and the role of mental health expert witness credibility in the English and Welsh courtrooms. While some specialist firesetting interventions have shown promising results for reducing key psychological vulnerabilities associated with the firesetting risk, more extensive longitudinal studies with experimental comparisons are needed to shed light on the magnitude of these effects. Finally, the current findings indicate the need for further juror and expert witness training to mitigate existing biases. Future evidence-based approaches would hopefully help mental health and legal professionals effectively communicate and use clinical or legal information within the criminal health system to help jurors to make well-informed decisions.

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Appendices

Appendix A. Author Guidelines for Behaviour Research and Therapy

GUIDE FOR AUTHORS

INTRODUCTION

The major focus of *Behaviour Research and Therapy* is an experimental psychopathology approach to understanding emotional and behavioral disorders and their prevention and treatment, using cognitive, behavioral, and psychophysiological (including neural) methods and models. This includes laboratory-based experimental studies with healthy, at risk and subclinical individuals that inform clinical application as well as studies with clinically severe samples. The following types of submissions are encouraged: theoretical reviews of mechanisms that contribute to psychopathology and that offer new treatment targets; tests of novel, mechanistically focused psychological interventions, especially ones that include theory-driven or experimentally-derived predictors, moderators and mediators; and innovations in dissemination and implementation of evidence-based practices into clinical practice in psychology and associated fields, especially those that target underlying mechanisms or focus on novel approaches to treatment delivery. In addition to traditional psychological disorders, the scope of the journal includes behavioural medicine (e.g., chronic pain). The journal will not consider manuscripts dealing primarily with measurement, psychometric analyses, and personality assessment.

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Appendix B. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 16
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 17
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pages 19-21
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 21-22
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Pages 22-23
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 23
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 23
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 23
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 24
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 26
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 26
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 26
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pages 22-23
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 23
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A

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Section and Topic	Item #	Checklist item	Location where item is reported
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	N/A
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 26
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Pages 24-25
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	N/A
Study characteristics	17	Cite each included study and present its characteristics.	Pages 30-36
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 29
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Pages 30-45
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page 29
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pages 30-45
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Pages 27-29, 37
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Pages 30-36
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 46-49
	23b	Discuss any limitations of the evidence included in the review.	Pages 50-53

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Section and Topic	Item #	Checklist item	Location where item is reported
	23c	Discuss any limitations of the review processes used.	Page 53
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 53-55
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 22
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 22
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 16
Competing interests	26	Declare any competing interests of review authors.	Page 16
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A

Appendix C. Full Search Strategy

1. Intervention terms

("interven*" OR "treat*" OR "practic*" OR "program*" OR "educat*" OR "therap*" OR "strateg*" OR "psychol*" OR "manag*" OR "method*" OR "techniq*" OR "train*" OR "skill*" OR "work*" OR "prevent*" OR "group*")

2. Firesetting terms

("arson*" OR "fire set*" OR "fire-set*" OR "fireset*" OR "fire rais*" OR "fire-rais*" OR "fire start*" OR "fire-start*" OR "pyroman*")

3. Evaluation terms

("effect*" OR "effic*" OR "evaluat*" OR "outcome*" OR "recidiv*" OR "re-offend*" OR "re-offend*" OR "repeat fire*" OR "reconvict*")

4. Adult terms

("adult*" OR "people" OR "individual*" OR "offend*" OR "prison*" OR "criminal*" OR "forensic" OR "population")

Final Search Strategy

"1 AND 2 AND 3 AND 4" [manually filter: human]

Appendix D. Author Guidelines for Psychiatry, Psychology and Law

Preparing Your Paper

All authors submitting to medicine, biomedicine, health sciences, allied and public health journals should conform to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, prepared by the International Committee of Medical Journal Editors (ICMJE).

Structure

- 1) Main document with author details: Your paper should be compiled in the following order: title page; abstract; keywords; main text (introduction, materials and methods, results, discussion); acknowledgments; disclosure and ethical standards statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list). Please label this file 'Main document – with full author details'. A separate title page may also be uploaded if desired, labelled 'Title page (not for review)'.
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- 3) Tables and figures: Please add any tables or figures as separate documents. Please label these file as 'Tables' and/or 'Figures' as appropriate.

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Author A [add name of author here] has declared no conflicts of interest

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Author C [add name of author here] has declared no conflicts of interest

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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Appendix E. Participant Information Sheet



Faculty of Medicine & Health Sciences
Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ
United Kingdom

Participant Information Sheet

Mental Health Expert Witnesses Presenting Clinical Information in the Courtroom

You are invited to participate in a research project for the Doctorate in Clinical Psychology (ClinPsyD) at the University of East Anglia (UEA). Before you decide to take part, please take some time to read the following information. It is important for you to understand why this research is being done and what participation will involve.

(1) What is this study about?

In criminal trials in England and Wales, professionals called 'Expert Witnesses' sometimes help the courts by sharing their specialist knowledge. Juries listen to what the Expert Witness has to say. The information they share might help the jury decide whether somebody is guilty of a crime. In criminal trials involving people with a mental illness, the Expert Witness might be a professional like a Psychiatrist or a Clinical Psychologist. We also know that some Expert Witnesses may appear to juries to be more credible (believable or trustworthy) than others. This research looks at things that might make an Expert Witness appear more or less credible to a jury. We are looking for people who live in England and Wales to play the role of the jurors.

(2) Who is running the study?

This study is being conducted by Eleftherios Kipoulas, Postgraduate Researcher in the ClinPsyD at Norwich Medical School, UEA. The primary research supervisor is Dr Peter Beazley, Deputy Programme Director & Senior Clinical Tutor at the UEA ClinPsyD. The secondary supervisor is Dr Ian Edwards, Senior Clinical Tutor at the UEA Law School.

(3) What will the study involve for me?

You will be asked to watch a brief video of an Expert Witness in a mock criminal trial. The person accused of the offence is called the 'defendant'. The expert witness in the video will be a professional clinician working with people with mental health problems.

You will be asked to imagine you are a juror and decide whether the defendant is guilty. You will be guided through the questions a juror must consider when making this decision. You will also be asked to complete one questionnaire about how credible (believable, trustworthy) the Expert Witness seemed in the video.

(4) How long does this study last?

The survey will take 15-20 minutes to complete.

(5) Do I have to complete this study?

No. Your participation is entirely voluntary. Once you start the survey, you can decide to stop at any time, just by closing your browser window or pressing the 'exit' button. However, once you press 'Submit my Answers' at the end of the survey, you can no longer withdraw from the study. This is because your answers are anonymous, and we cannot tell who gave which answers after you have submitted the survey. None of your answers is saved before you press the 'Submit my Answers' button.

(6) Are there any risks or costs associated with taking part in this study?

We do not expect our study to cause any distress or harm to the participants. However, we appreciate that some topics and case materials presented in the video may be distressing for some participants. For example, the Expert Witness will be talking about somebody accused of a serious crime. We advise you to stop completing the survey if you feel discomfort or distress at any time. If you complete the survey and experience distress, please get in touch with your GP or a helpline, such as Samaritans (24/7 free telephone support service via 116 123).

(7) Are there any benefits to being in the study?

We believe this study will help us understand what makes Expert Witnesses more or less credible in their testimony in criminal court cases. This may inform real-life processes in English and Welsh court systems. Although you may not benefit directly from participating in this study, we hope our findings will benefit other people, mental health professionals, and legal or court services.

(8) What if I have questions about the study?

If there is anything unclear or you need to know more about the study, please contact me at e.kipoulas@uea.ac.uk. I will do my best to get back to you in a timely manner.

(9) Will I be told the results of the study?

After you have submitted your answers, you will be asked if you want to receive a copy of the final study findings. If you do, you will be asked to enter an email address where we can send our findings to you.

(10) What will happen to the information I share during the study?

All data management will follow the General Data Protection Regulation Act (2018) and the University of East Anglia Research Data Management Policy (2019). All of the information you share will be **anonymised**. We will not ask you to provide any personal details. Your responses will be stored securely using secure UEA cloud storage for ten years. Then, we will destroy all the project data. Only the research team will have access to the project data. We will only use your information for the purposes you have agreed to in this sheet. We hope to publish the results from the study in an academic journal. However, this will not include your name or any identifiable information about you.

If you tell us your email address, we will keep this in a secure file on UEA cloud storage separate from the research data. Your email address **will not be included** in the research and will be treated as confidential.

Once we send you the file, we will delete your email address from our records. We will not use your email for any other purpose.

(11) What if I have a complaint or any concerns about the study?

Please contact our lead researcher at e.kipoulas@uea.ac.uk and let us know if there are any issues of concern. If you are concerned about the way this study is being done and you wish to make a complaint to someone independent from the study, please contact Prof Niall Broomfield, Head of the Department of Clinical Psychology and Psychological Therapies (CPPT) and Programme Director for the ClinPsyD, by email (n.broomfield@uea.ac.uk).

(12) OK, I want to take part – what do I do next?

You need to read and agree to the consent form on the next page. Then, you will be given a link to access the online survey.

Kind regards,

Eleftherios Kipoulas

Trainee Clinical Psychologist

Doctorate in Clinical Psychology (ClinPsyD)

Appendix F. Consent Form for Participants – Actors



Faculty of Medicine & Health Sciences
Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ
United Kingdom

Consent Form for Participants – Actors

Mental Health Expert Witnesses Presenting Clinical Information in the Courtroom

By giving consent to participate in this study, I agree that I have read and understood this consent form and am happy to participate.

I give my consent and confirm that:

- ✓ I have read the Participant Information Sheet and had the opportunity to ask any questions about the research study. I am also happy with the answers from the researchers.
- ✓ I understand the purpose, procedure, and benefits or risks of this study.
- ✓ I understand that my participation involves the video recording of a mock trial where I will pretend to be an Expert Witness on a criminal case.
- ✓ I understand that I will provide the research team with a passport-type photo (head and shoulders, smiling expression) which will be shared anonymously with a focus group of 10-15 professionals who do not have any links with UEA or myself.
- ✓ I understand that my participation in this study is entirely voluntary.
- ✓ I understand that I can discontinue my involvement at any time before the video recording is produced and distributed to the participants. However, suppose I choose to discontinue participation after the video is produced and before it is distributed to the participants. In that case, I will notify the research team by providing written notice by the end of February 2022.
- ✓ I understand that all the information I share will be stored securely and treated as confidential. Furthermore, my information will only be used for purposes that I have agreed to.
- ✓ I understand that I may not benefit directly from participating in this study, but others may benefit more.

CRIMINAL FIRESETTING

- ✓ I understand that the video containing my face and voice may be edited, exhibited, and/or distributed solely to the participants who consent to participate in this study. Participants will not be given my name or any identifiable information about me.
- ✓ I understand that the results of this study may be published, but these publications will not include my name, face, or any identifiable information about me.
- ✓ I consent not to save, record, or share any information and video materials of the study.
- ✓ I certify that I am over eighteen years of age and am competent to contract in my own name insofar as the above is concerned.
- ✓ I understand that the project team can see no risk presently and that I take full responsibility for my involvement in this project and the risks that it may entail.
- ✓ I hereby authorise the research team the right and permission to use my face, voice, and likeness in video, photographs, and audio-visual recordings only for the purposes of this study.
- ✓ I acknowledge and understand these materials of me may be used for future research and educational purposes only with my permission.

Participant full name: _____

Participant signature: _____

Date: _____

Researcher full name: _____

Researcher signature: _____

Date: _____

Appendix G. Focus Group Participant Consent Form



Faculty of Medicine & Health Sciences
Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ
United Kingdom

Consent Form for Participants – 'Expert Witness' Focus Group

By giving consent to participate in this focus group, I agree that I have read and understood this consent form and am happy to participate.

I give my consent and confirm that:

- ✓ I have read the Participant Information Sheet and had the opportunity to ask any questions about the research study. I am also happy with the answers from the researchers.
- ✓ I understand the purpose, procedure, and benefits or risks of this study.
- ✓ I understand that my participation involves participating in a focus group which looks at the credibility factors of professional clinicians or academic staff members.
- ✓ I understand that my participation in this focus group is entirely voluntary. Therefore, I can decide not to participate or opt out at any stage. Furthermore, I understand that this will not affect my current or future relationships with the research team or UEA.
- ✓ I understand that all the information I share will be stored securely and anonymously. My personal details will be treated as confidential and only be used for purposes I have agreed to.
- ✓ I understand that my name or any identifiable information I share (e.g., my email address) will not be included in the research nor shared with the study's participants-actors.
- ✓ I understand that the results of this study may be published, but these publications will not include my name or any identifiable information about me.
- ✓ **I consent not to save, record, or share any information and video materials of the study.**

Participant full name: _____

Participant signature: _____

Date: _____

Researcher full name: _____

Researcher signature: _____

Date: _____

Appendix H. Video Transcript

Script

1. DEFENCE (**written** instructions at the beginning of the video – introductory paragraph):

"We, the defence, argue that Mr Brown, aged 18, is not guilty of this offence. We argue that he did not intend to cause the damage to the hospital's property and was not aware that the damage would result from his behaviour. Our case is that due to his learning disability, Mr Brown did not have the same ability to foresee or appreciate risk as somebody without a learning disability. We argue that he did not consider that his actions would result in damage to the hospital's property.

A **Consultant Clinical Psychologist/Consultant Psychiatrist** with a background in the assessment of mental health difficulties in a forensic context met with Mr Brown before today's trial so that his mental health difficulties could be assessed. Dr Davies interviewed Mr Brown on the 14th of February for a 4-hour assessment. Dr Davies met Mr Brown again individually on the 18th of February for a further individual assessment with Mr Brown.

Dr Davies, thank you for coming to the court today to provide evidence for Mr Brown's mental state and state of recklessness. Before we ask you some questions, could you please introduce yourself to the court and summarise your opinion on Mr Brown's mental health condition?"

2. EXPERT WITNESS (**video recording** – actors read their testimony on tape):

Thank you, Your Honour. My name is Dr John Davies. I am a **Consultant Clinical Psychologist/Consultant Psychiatrist** with a speciality in learning disabilities and neurodevelopmental disorders. I completed my formal training in **Clinical Psychology/Psychiatry** in 2005 and I have worked as a **Clinical Psychologist/Psychiatrist** in several Specialist Learning Disabilities services across the National Health Service since then. My day-to-day duties involve assessment and treatment in an outpatient facility for adults with learning disability needs.

Mr Brown is charged with arson with intent to endanger life and damage property. As part of my role, I have been instructed to assess Mr Brown and provide an expert opinion for the court regarding his mental health condition in relation to his offence. I have been specifically instructed to address the issues of intent and recklessness in the defendant's case. I note that Mr Brown received an assessment of his learning needs at the age of 12 and was given a diagnosis of Mild Learning Disability.

In terms of background information, Mr Brown is 18 years old and goes regularly to a local college. He lives with his two biological parents and his 5-year younger adopted brother. Mr Brown experienced a series of complications with infections at his birth and early childhood. He missed almost all of his developmental milestones, including sitting up, walking, and learning to talk. He attended a number of different special educational needs schools since he was 9 years old. Mr Brown described experiencing bullying from an early age because of his weight and communication

difficulties. He found it hard to concentrate and read at school and he received one-to-one personal assistance. Growing up, Mr Brown also struggled to build and maintain friendships.

I note Mr Brown was suspended from school on a number of occasions. In 2016, he absconded from a charity social event and was missing for eight hours. The police were contacted. Mr Brown was suspended again in 2017 for being verbally abusive towards the cleaning staff. At this point, Mr Brown began to present with challenging behaviours, which resulted in him being excluded from two schools in 2018 and 2019. In March 2020, a professionals meeting was held by local services, and concerns were raised about Mr Brown's vulnerability. For example, it was reported that Mr Brown was approaching strangers in cars asking for cigarettes.

Mr Brown experiences increasing anxiety and distressing intrusive thoughts about harming others or himself, which are commonly reported in people with a learning disability. When distressed, Mr Brown said that he would set fire to newspapers, books, or old clothes, which helped him to calm down. His parents reported that their son had been preoccupied with fire since he was young, but they don't know what caused it. Mr Brown seems to get excited about the fire's ability to get out of control and burn everything. He appeared to have developed and maintained a belief that he is a dangerous person and needs to stay away from other people.

Mr Brown is well supported by his parents, who have a good understanding of his needs and learning difficulties. In this assessment, there was not enough evidence to suggest that Mr Brown experiences symptoms of a psychotic illness, for example, delusional thinking or hallucinatory phenomena.

Mr Brown's performance on various neuropsychological tests showed evidence of some difficulties across a range of areas, including his memory and his ability to plan, as well as his visual and perceptual. Mr Brown presented in a social sense as younger than his chronological age and, at times of the assessment, was rather socially disinhibited (i.e. asking inappropriate questions to the interviewer). Mr Brown's cognitive abilities were found to range between borderline to low average across all domains, with a full-scale Intelligence Quotient (IQ) score of 61. Similarly, he struggles with understanding other people's intentions. This means that in day-to-day situations, he may experience problems with accurately recognising other people's intentions and understanding how they may guide behaviours.

As my **psychological/psychiatric assessment** confirmed, Mr Brown suffers from a Mild Learning Disability, a recognised condition affecting the brain's ability to send, receive, and process information. He also meets the criteria for a diagnosis of Attention and Deficit Hyperactivity Disorder (ADHD), having displayed features commonly seen in this disorder, including recklessness, impulsivity, disinhibition, problems in social understanding, and cognitive difficulties.

I note that when interviewed about the current alleged offence, Mr Brown explained that he went camping with his younger brother in the hospital yard without their parents' permission. Mr Brown admitted that during the night, he had set fire to newspapers in the yard at the back of the hospital. He explained that he brought matches with him because he wanted to show his little brother some fire tricks but did not understand that there was flammable material in the hospital. Mr Brown admitted throwing the lit newspapers under a wheelie bin and leaving the yard without putting out the fire. He understood that the burning newspapers set fire to the bin and subsequently spread to the hospital property. This, in turn, caused over one million pounds worth of damage to the hospital

property and adjoining buildings. Mr Brown stated remorse for the incident for which he pleaded guilty but also insisted that he did not believe that his actions would result in such damage. In other words, he denied intending to cause injury to others or damage the hospital's property.

In my opinion, as **Consultant Clinical Psychologist/Consultant Psychiatrist**, his emotional and developmental immaturity, ADHD, and difficulties with his anxiety and learning needs will have likely impacted his ability to think through the consequences of his actions. His explanation that he set the fire without thinking through the consequences appears plausible and would be consistent with somebody with his level of impairment. In particular, I think it is plausible that he would not have appreciated the risk caused by setting a small fire so close to the tanks containing flammable material, and overall, this is, in my view, the most likely explanation.

However, I cannot exclude the possibility that Mr Brown did indeed understand this risk or was, in fact, particularly excited by the prospect of setting fires within the hospital grounds. In this regard, I did notice that when Mr Brown talked about the fires, he seemed to become somewhat animated and perhaps even excited about his actions during the alleged offence.

3. TRIAL JUDGE'S DIRECTION TO THE JURY (written instructions** at the end of the video – closing paragraph):**

"Members of the jury, in order to find Mr Brown guilty of the offence of criminal damage, you must be sure, beyond reasonable doubt, of several things.

You must be sure that **he did, in fact, damage property belonging to the hospital.**

If you are sure that he did, in fact, damage property belonging to the hospital, you must also be sure that Mr Brown **intended to cause that damage or was reckless about causing that damage.** You may be asking what I mean by "intention" or acting "recklessly". In law, a person intends a result if he acts in order to bring it about. If you are sure that Mr Brown acted in order to bring about the damage to the hospital's property, then your verdict will be '**guilty**'.

If you are not sure that he intended to cause the damage, you must ask yourselves whether he caused the damage recklessly. In law, a person has acted recklessly if, when he does the act or acts that cause the damage, he was aware of a risk that the damage would occur, and it was, in the circumstances known to him, unreasonable for him to take that risk.

If you are sure that Mr Brown was aware of a risk that the damage would occur when he did the acts that caused the damage, your verdict will be '**guilty**'.

You have heard evidence concerning Mr Brown's learning disability and Attention and Deficit Hyperactivity Disorder (ADHD). These are factors you may want to consider when you are deciding whether Mr Brown intended to cause the damage and whether he appreciated the risk of the damage resulting from his actions.

If you are not sure that he intended to cause the damage and you are not sure that he was reckless about causing the damage, then you must find Mr Brown '**not guilty**' of this charge."

Appendix I. Witness Credibility Scale

Witness Credibility Scale (WCS)

Instructions: Please rate the expert witness for the following items on the scale provided.
If you are unsure, please take your **BEST GUESS**.

Example:

1	2	3	4	5	6	7	8	9	10	
Dressed Formally						X	Dressed Informally			

1	2	3	4	5	6	7	8	9	10
Unfriendly					Friendly				

1	2	3	4	5	6	7	8	9	10
Disrespectful					Respectful				

1	2	3	4	5	6	7	8	9	10
Unkind					Kind				

1	2	3	4	5	6	7	8	9	10
Ill-mannered					Well-mannered				

1	2	3	4	5	6	7	8	9	10
Unpleasant					Pleasant				

1	2	3	4	5	6	7	8	9	10
Untrustworthy					Trustworthy				

1	2	3	4	5	6	7	8	9	10
Untruthful					Truthful				

1	2	3	4	5	6	7	8	9	10
Undependable					Dependable				

1	2	3	4	5	6	7	8	9	10
Dishonest					Honest				

1	2	3	4	5	6	7	8	9	10
Unreliable					Reliable				

CRIMINAL FIRESETTING

1	2	3	4	5	6	7	8	9	10
Not confident					Confident				

1	2	3	4	5	6	7	8	9	10
Inarticulate					Well-spoken				

1	2	3	4	5	6	7	8	9	10
Tense					Relaxed				

1	2	3	4	5	6	7	8	9	10
Shaken					Poised				

1	2	3	4	5	6	7	8	9	10
Not Self-Assured					Self-Assured				

1	2	3	4	5	6	7	8	9	10
Uninformed					Informed				

1	2	3	4	5	6	7	8	9	10
Illogical					Logical				

1	2	3	4	5	6	7	8	9	10
Uneducated					Educated				

1	2	3	4	5	6	7	8	9	10
Unwise					Wise				

1	2	3	4	5	6	7	8	9	10
Unscientific					Scientific				

Appendix J. Demographic Information Proforma

Demographic Information Proforma



1. Where do you live?

England

Wales

Other (specify)

2. Gender:

Male

Female

Other

I prefer not to say

3. Ethnicity:

White

non-White

Or

White

English, Welsh, Scottish, Northern Irish or British Irish

Gypsy or Irish Traveller

Any other White background

Mixed or Multiple ethnic groups

White and Black Caribbean

White and Black African

White and Asian

Any other Mixed or Multiple ethnic backgrounds

Asian or Asian British

Indian

Pakistani

Bangladeshi

Chinese

Any other Asian background

Black, African, Caribbean, or Black British

African

Caribbean

Any other Black, African or Caribbean background

Other ethnic group

Arab

Any other ethnic group

I prefer not to say

In Wales, 'Welsh' is the first option in the White category.

4. How would you describe your national identity?

English

Welsh

Scottish Northern

Irish British

Other (Please write below)

I prefer not to say

5. Are you over 18 and under 76?

Yes

No

If yes, which category below includes your age?

18-24

25-34

35-44

45-54

55-64

65-76 years old

I prefer not to say

6. Education:

Primary school

Secondary school up to 16 years

Higher or secondary or further education (A-levels, BTEC, etc.)

College or university

Post-graduate degree

Professional degree

Doctorate degree

I prefer not to say

7. Does any of the following categories describes your employment status?

Psychologist

Psychiatrist

Judge

Barrister

Solicitor

Other*

8. Which of the following categories best describes your employment status?

- Employed, working 1-39 hours per week
- Employed, working 40 or more hours per week
- Not employed, looking for work
- Not employed, NOT looking for work
- Retired
- Disabled, not able to work
- I prefer not to say

9. Have you lived in England or Wales for any period of at least five years since you were 13 years old?

- Yes*
- No

10. In the last 10 years, have you served any part of a sentence of imprisonment or detention, received a suspended sentence, or been subject to a community order/sentence?

- Yes
- No*

11. Have you ever served a term of imprisonment or detention for five years or more?

- Yes
- No*

12. Are you currently on bail in criminal proceedings?

- Yes
- No*

*Only participants who will select the answers with the asterisk symbol will be included in the study. This means they are eligible to participate in actual jury service in England and Wales based on the Juries Act 1974.

Appendix K. Confirmation Letter from the UEA FMH Research Ethics Committee

Faculty of Medicine and Health Sciences Research Ethics Committee



NORWICH MEDICAL SCHOOL

Bob Champion Research & Educational
Building

Rosalind Franklin Road

University of East Anglia

Norwich Research Park

Eleftherios Kipoulas
Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich
NR4 7TJ

27/01/22

Dear Lefteris

Project Title: Perceptions of Bias and Credibility of Male and Female Clinical Psychologist and Psychiatrist Expert Witnesses Presenting Clinical Information in the Courtroom.

Reference: 2021/22-024

Thank you for your email of 14 Jan 2022 notifying us of the amendments to your above proposal. These have been considered and I can confirm that your amended proposal has been approved.

Please can you ensure that any further amendments to either the protocol or documents submitted are notified to us in advance, and that any adverse events which occur during your project are reported to the Committee.

Approval by the FMH Research Ethics Committee should not be taken as evidence that your study is compliant with GDPR and the Data Protection Act 2018. If you need guidance on how to make your study GDPR compliant, please contact your institution's Data Protection Officer.

Please can you arrange to send us a report once your project is completed.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Paul Linsley', is written over a horizontal line.

Dr Paul Linsley
Chair
FMH Research Ethics Committee

Appendix L. Participant Consent Form

Participant Consent Form



By giving consent to take part in this study, I agree that I have read this consent form and I am happy to proceed with the online survey.

I give my consent and confirm that:

- ✓ I have read the Participant Information Sheet and I have had the opportunity to ask any questions about the research study. I am also happy with the answers from the researchers.
- ✓ I understand the purpose, procedure, and any benefits or risks associated with this study.
- ✓ I understand that my participation involves the completion of an online and anonymised survey after watching a brief video recording.
- ✓ I understand that my participation in this study is entirely voluntary, and I can decide to not take part.
- ✓ I understand that I can opt out at any time or refuse to answer any question without any consequences as long as I do not submit my final answers.
- ✓ I understand that my answers and all the information I share will be deleted immediately and will not be included in the study if I choose to opt out.
- ✓ I understand that I will not be able to change my answers or opt out of the study after I have pressed 'Submit my Answers' at the end of the survey.
- ✓ I understand that all of the information I share will be stored securely and will be treated as confidential. This will only be used for purposes that I have agreed to in the Participant Information Sheet.
- ✓ I understand that I may not benefit directly from taking part in this study, but other people may benefit more.
- ✓ I understand that the results of this study may be published, but these publications will not include my name or any identifiable information about me.
- ✓ I understand that I can contact the research team and ask for further information if I want to.
- ✓ I understand that there will be no opportunities for individual debrief sessions with the research team due this study is carried out online. I am happy to receive a debrief statement with information about seeking further support if I need to at the end of the survey.
- ✓ **I consent to NOT save, record, or share any information and video materials of the study.**

Yes, I do Consent

No, I do not Consent

Appendix M. Debrief Statement



Faculty of Medicine & Health Sciences
Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ
United Kingdom

Mental Health Expert Witnesses Presenting Clinical Information in the Courtroom

Debrief Statement

Dear participant,

Thank you for taking part in this research study looking into factors influencing the credibility of mental health Expert Witnesses presenting clinical information in the courtroom. We understand that some information and topics presented in the video may be difficult to hear or watch. Unfortunately, we are unable to offer individual debrief sessions due to this study being carried out online and anonymously. If you experience any discomfort or distress following the survey, please get in touch with your GP or a helpline in the first instance. Samaritans offer a 24/7 free telephone support service via 116 123.

If you need more information about the study, please email me at e.kipoulas@uea.ac.uk. I will try to get back to you on time. If you wish to receive a lay summary of our results when the study is finished, please tell us your email address here:

My email address:

If you have any concerns about the way this study is being done or you wish to make a complaint to someone independent from the study, please get in touch with Prof Niall Broomfield, Head of the Department of Clinical Psychology and Psychological Therapies (CPPT) and Programme Director for the ClinPsyD, by email (n.broomfield@uea.ac.uk).

Best wishes,

Eleftherios Kipoulas
Trainee Clinical Psychologist
Doctorate in Clinical Psychology (ClinPsyD)