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Forensic mental health expert testimony and judicial decision-making: A systematic literature review☆

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ABSTRACT

Forensic mental health expertise (FMHE) is an important source of information for decision-makers in the criminal justice system. This expertise can be used in various decisions in a criminal trial, such as criminal responsibility and sentencing decisions. Despite an increasing body of empirical literature concerning FMHE, it remains largely unknown how and to what extent this expertise affects judicial decisions. The aim of this review was therefore to provide insight in the relationship between FMHE and different judicial decisions by synthesizing published, quantitative empirical studies. Based on a systematic literature search using multiple online databases and selection criteria, a total of 27 studies are included in this review. The majority of studies were experiments conducted in the US among mock jurors. Most studies focused on criminal responsibility or sentencing decisions. Studies concerning criminal responsibility found consistent results in which psychotic defendants of serious, violent crimes were considered not guilty by reason of insanity more often than defendants with psychopathic disorders. Results for length and type of sanctions were less consistent and were often affected by perceived behavioral control, recidivism risk and treatability. Studies on possible prejudicial effects of FMHE are almost non-existent. Evaluation of findings, limitations and implications for future research and practice are discussed.

1. Introduction

In most legal systems, a person who commits a crime is held criminally responsible for this act based on the proposition that a person has freedom of action and therefore could have refrained from committing the crime. Criminal responsibility therefore requires the intention to conduct the act (*mens rea*) in addition to this conduct being voluntary and prohibited (intentional bodily movement), or *actus reus*. Both elements of the crime (*mens rea* and *actus reus*) have to be proven beyond a reasonable doubt to result in a guilty verdict. In case a mental disorder was present at the time of the alleged crime and this disorder contributed to the commission of the crime, criminal responsibility can be reduced or even result in an excuse from conviction or punishment. As a result of this doctrine, the mental condition of a suspect is to be taken into consideration by criminal justice decision makers (Hart, 2008; Tsimploulis, Niveau, Eytan, Giannakopoulos, & Sentissi, 2018).

A judge or jury is usually not equipped with medical or psychological expertise to determine whether a defendant suffers from a mental disorder and to what extent this contributed to committing the crime by impairing the ability to appreciate the nature of the action or wrongfulness of the act (based on M'Naghten Rule, see R v. M'Naghten, 1843). In order to inform the judge or jury on these factors and to assist them in their decision-making process, a forensic mental health expert can be requested to do an evaluation.

When it is suspected that a defendant suffers from mental health problems, it is possible to request a pre-trial mental health examination. Forensic mental health experts focus on giving evidence in court and advise on treatment for offenders with severe mental illness, thereby preventing recidivism and protecting society (Nedopil, 2009). Apart from evaluation of the mental health of a defendant, the expert, usually a psychologist or psychiatrist, also examines other aspects of a defendant's life. These aspects include criminal record, mental health history, substance use, family and peer relationships, employment and education, physical health (including medication) and prior (mental health) care or treatment (Glancy et al., 2015). Information is collected by examining records of the defendant's history, contact with collateral sources and interviews with the suspect. In addition to clinical assessment, psychological, neurological or biological tests may be used to

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determine whether a mental disorder is present. Assessment of risk of future dangerousness and recidivism is frequently also a part of the examination. The expert will prepare a report of findings and this will be added to the case file and/or they will have to testify during the actual trial. The contents of the testimony or report can be used by a judge or jury in various legal decisions in the criminal procedure: criminal responsibility, sentencing decisions, and competencies to confess, plead guilty, stand trial, be sentenced or be executed (Heilbrun, 2006).[1] Since expert information can play a crucial role in judicial decisions, the question therefore arises how decision-makers interpret and use the information provided by forensic mental health experts (Blais, 2015).

Prior research indicated that legal professionals value the information provided by forensic mental health experts (Redding, Floyd, & Hawk, 2001). Therefore, it is important to understand how this information is used in decision-making. Consequences for both defendants and society are significant: mental disorders, especially depression and psychosis, are highly prevalent among prisoners and can result in adverse outcomes such as suicide and aggressive behavior when left untreated (see review by Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016). Defendants who are not criminally responsible for their actions as a result of mental disorder should be hospitalized in order to protect society by treating their mental health problems. To optimize the use of forensic mental health information in judicial decision-making to benefit both the defendant and society, it is important to determine how this information is used in different judicial decisions. Despite the widespread use of mental health information in the legal system and the recent interest in this topic (see reviews and meta-analyses by Berryessa & Wohlstetter, 2019; Cappon & Vander Laenen, 2013; Kois & Chauhan, 2018), there is no overview of the use of forensic mental health expertise in different judicial decisions, thereby also focusing on possible prejudicial effects of this information in decisions where it is irrelevant (i.e. whether a suspect actually committed the alleged crime). Forensic mental health information can play a crucial role in individual cases whereby the specific effects may differ according to type of decisions and interact with the specific context and circumstances of a particular case (e.g. diagnosis, offense, prior record etc.) (Cappon & Vander Laenen, 2013). However, it is important to explore whether any systematic effects of forensic mental health information can be distinguished in different types of decisions. A systematic review can provide this overview while also identifying areas where no or little research has been done yet (Petticrew & Roberts, 2006). Hence, the aim of the current review is to provide a synthesis of existing empirical research on forensic mental health expert testimony and judicial decisions.

1.1. Legal context

Before the relationship between forensic mental health expertise and judicial decision-making is further examined, it is important to outline the legal context and operationalize key concepts used in the current review, since we expected to find studies from multiple different jurisdictions. Comparison between jurisdictions of the use and effects of forensic mental health expert testimony on judicial decisions is difficult because legal standards and operationalization and classification of mental illness differ across jurisdictions (Grossi & Green, 2017). With regard to these differences, we have aimed to focus on the elements which are relevant in most legal systems and when necessary explicate essential differences. This framework is displayed in Table 1.

1.1.1. Guilt: mens rea

First, expert information on the mental health of the defendant is a resource to assess criminal responsibility, thereby focusing on the *mens rea* element of a crime (decision 1a, see Table 1). In many Western jurisdictions, the assessment of criminal responsibility is done in case of an insanity defense (for an international comparison see Grossi & Green, 2017). The prevalence of an insanity defense is extremely low. In the United States, in <1% of felony cases a defendant enters an insanity plea. Whether this plea is successful, differs considerably across jurisdictions (Callahan, Steadman, McGreevy, & Robbins, 1991; Pasewark, 1986). The legal criteria to establish insanity vary across jurisdictions. In many US states a person may be considered insane when at the time of committing the act the party accused was laboring under such a defect of reason, from disease of mind, as not to know to the nature and quality of the act he was doing, or as not to know what he was doing was wrong (R v. M'Naghten, 1843). In many European countries, as well as in most US states, a person may be considered not responsible when at the time of the crime as a result of mental illness or defect the defendant lacks substantial capacity either to appreciate the criminality of his conduct or to conform his conduct to the requirements of the law (as proposed by the American Law Institute; Model Penal Code, 1962). These last criteria incorporate elements from multiple other insanity tests used in the US, namely absence of volitional control (Irresistible Impulse Test; R. v. Byrne, 1960) as well as the presence of a mental illness (Durham Rule; Durham v. State, 1954).

Most legal insanity standards include the presence of a mental illness that causes significant deficits in the ability to understand the illegal nature of one's act and be aware of the consequences. Depending on the jurisdiction, defendants with a mental illness can be found guilty, not guilty by reason of insanity (NGRI) or guilty but mentally ill (GBMI) (Grossi & Green, 2017). Depending on the jurisdiction, a decision on criminal responsibility may be dichotomous (guilty vs. NGRI) or on a scale (e.g. responsible, diminished responsible, not responsible) (Grossi & Green, 2017).

In addition to differences in legal standards, different perspectives exist with regard to what types of mental illness can reduce criminal responsibility. For example, differences exist on whether personality disorders, especially antisocial personality disorder and psychopathy, can impair criminal responsibility. In many European jurisdictions, a defendant with a personality disorder may be judged sufficiently mentally ill which may result in a NGRI verdict (or other similar decision as a result of diminished responsibility). In contrast, personality disorders are generally not considered to impair criminal responsibility in North American jurisdictions. In certain states, personality disorders are explicitly excluded from insanity defenses (Grossi & Green, 2017). A theoretical argument for diversity in criminal responsibility decisions for different types of disorders can be found in the attribution theory. Attribution theory proposes that people typically attribute more responsibility to individuals whose behaviors appear to be tied to personality traits within their control rather than those that are less controllable (Edens, Colwell, Desforges, & Fernandez, 2005; Weiner, 2010). Previous research suggests that jurors are generally more receptive to uncontrollable factors than to those that appear to be controllable (Barnett, Brodsky, & Price, 2007; Garvey, 1998). This perception results in the idea that mental disorders with delusionary thinking (e.g.

Table 1
Effects of forensic mental health expertise on judicial decisions.

Judicial decision	Forensic mental health expertise		
	+	0	−
1. Guilt			
a. *Mens rea*	×	√	√
b. *Actus reus*	×	√	×
2. Sentencing	√	√	√

Note: + = positive effect; 0 = no effect; − = negative effect; × = no; √ = yes.

[1] The types of decisions in which this information can be used may differ according to legal system.

psychotic disorders, schizophrenia) may result in less attribution of criminal responsibility than mental disorders with more (supposedly) controllable symptoms (e.g. lying, deception, lack of remorse as symptoms of antisocial personality disorder).

In addition to an insanity defense, mental health information can also be used in a justification of self-defense or reduce the charge in certain crimes (e.g. murder versus manslaughter) by focusing on the extent of the criminal intent (Schweitzer et al., 2011).

1.1.2. Guilt: actus reus

While information from a forensic mental health expert plays an important part in assessment of the *mens rea* element of a crime, this information should in no case affect the assessment of facts in a case and even less the decision whether a defendant committed the alleged crime (*actus reus*; decision 1b see Table 1) (Finkelstein & Bastounis, 2010). However, research has shown that the boundary between the process of subjective allocation of responsibility based on personality assessment and the process of assessing guilt based on an examination of facts is not very clear (Bordel, Guingouain, & Somat, 2006). To prevent any prejudicial effects, in some jurisdictions, such as some states in the United States, a (capital) trial is bifurcated in a guilt phase and a sentencing phase. If the defendant is found guilty, the trial moves to a penalty phase in which the same jury receives additional information on mental health, as well as other mitigating and aggravating circumstances, before deciding on the (death) sentence (Fisher, 2011). Similarly, the United States try to prevent any prejudicial effect by regulating the admissibility of evidence. To be admissible, evidence needs to be relevant in a court of law (Federal Rules of Evidence 401). Additionally, evidence that is relevant to the legal question at hand can be ruled inadmissible if its probative value is outweighed by unfair prejudicial bias (Federal Rules of Evidence 403).

In non-bifurcated trials, testimony on mental health problems and other personal circumstances of a defendant are not reserved until the sentencing phase of the trial. Information may even be known to the decision-makers before the trial starts if it is part of the case file (e.g. in the Netherlands). As a result, this information may interfere with the evaluation of the facts of the alleged crime. This could result in interpretation of facts and evaluation of guilt of the defendant unduly guided by knowledge of the personality of the defendant (Finkelstein & Bastounis, 2010; Fischhoff, 1975). It is possible that certain mental disorders, such as psychopathy, can lead to these prejudicial effects since symptoms of certain disorder are (stereotypically) associated with criminality. People with a mental illness are often perceived as being more violent and therefore dangerous (see review by Angermeyer & Dietrich, 2006). This stigma creates a link between mental illness and criminality. Therefore, a defendant with a mental illness may be considered guilty more often than a defendant without mental illness (Mossiere & Maeder, 2015).

1.1.3. Sentencing

A second important function of forensic mental health information is in the sentencing phase of a trial (decision 2, see Table 1). Information on the mental health of defendant can be submitted to mitigate punishment (e.g. life in prison instead of death penalty) and to advise on rehabilitative efforts. A mental disorder can be accepted as a mitigating factor if this disorder has impaired the rationality of practical reasoning by the defendant or as an indication that he or she is no future danger to society (Burrows & Reid, 2011; Morse, 2011). In other jurisdictions, when a mental disorder leads to diminished responsibility this can also result in mitigated punishment. This function has its foundation in a retributive perspective on punishment. Punishment is supposed to be the deliberate infliction of suffering proportionate to the culpability of the offender and harm of the crime committed (*just desert*) (Von Hirsch, 2009). The presence of a mental disorder can reduce the responsibility for the crime committed and therefore mitigate or exempt the punishment imposed.

On the other hand, the prosecution can use information on the defendant's mental health as an aggravating factor to emphasize risk of future dangerousness. If a defendant is less capable of understanding the nature and wrongfulness of his act, he or she can be perceived as having a higher risk of future criminal behavior. Despite research demonstrating that clinical variables of disorders (with the exception of antisocial personality disorder/psychopathy) are not actually predictive of either general or violent recidivism (Bonta, Blais, & Wilson, 2014), people with a mental illness are often perceived as being more violent and therefore dangerous (see review by Angermeyer & Dietrich, 2006). Containment of this risk may be believed to be achieved through incapacitation by committing a person, either to prison or to a psychiatric hospital. This function has its foundation in a more utilitarian perspective on sanctions. Sanctions are imposed to serve a future purpose (e.g. individual prevention through incapacitation or rehabilitation, or general prevention trough deterrence). Whenever the presence of a mental disorder is used to emphasize dangerousness for future harm to victims and society it can be hypothesized that the presence of a mental disorder increases the length or intensity of a sanction. This increased length of incarceration (or commitment in case of involuntary commitment to a treatment center) can on the one hand have the purpose of incapacitation to protect society. On the other hand, a longer duration of incarceration in a treatment center may be required to treat a mental illness and other criminogenic risk factors in order to rehabilitate an offender (Grossi & Green, 2017). Attribution theory may also provide a further explanation possible for diverse effects for different types of disorders. Mental disorders with delusionary thinking can result in less attribution of criminal responsibility than mental disorders with more controllable symptoms, such as lying and deceiving (Edens et al., 2005; Weiner, 2010). Less criminal responsibility can subsequently mitigate sentencing and therefore differences in sentencing may occur based on type of disorder present.

1.2. Prior research on forensic mental health expertise in judicial decisions

Most research is often either doctrinal in nature focusing on case law and legislation or focuses on the quality of forensic mental health evaluation (e.g. Wettstein, 2005). Empirical research is less prevalent. A literature review on the use of mental disorder in judicial decisions in juvenile cases only identified 8 empirical studies focusing on this relationship: Cappon and Vander Laenen (2013) found that the presence of a mental disorder or mental health report increases the probability of a juvenile offender being confined. An overview of studies on adult defendants is, to the best of our knowledge, non-existent. Results from empirical studies have been inconclusive and some research suggests that the actual effects of introducing mental health information may be contrary to intended purposes (Edens et al., 2005; Stites & Dahlsgaard, 2015). A recent review focused on the possible labeling effects of a diagnosis of a mental disorder, specifically psychopathy, in sentencing decisions (Berryessa & Wohlstetter, 2019), but an overview for studies specifically focusing on information from a forensic mental health expert instead of a simple label or diagnosis is, to the best of our knowledge, still absent.

1.3. Current study

The legal context facilitates multiple potential effects of forensic mental health expertise on different judicial decisions in a criminal trial (see Table 1). Despite the crucial role information from an expert can play in a criminal trial, to the best of our knowledge, no systematic review exists on the effects of forensic mental health expertise in different judicial decision-making with adult defendants. The aim of this review is therefore twofold: first, to provide an overview and synthesis of available empirical research on the use and effects of forensic mental health expertise on judicial decisions in criminal trials; second, to determine the nature and directions of these effects. The main research

question of this review is therefore to what extent forensic mental health expertise affects judicial decision-making. Two sub questions were formulated to help answer the main question in this review:

1. To what extent and in what manner does forensic mental health expertise affect judicial decisions on guilt?

The focus is on both elements of this decision: *mens rea* and *actus reus*. Thereby determining whether forensic mental health information is applied as intended and whether any prejudicial effects of this information occur.

2. To what extent and in what manner does forensic mental expertise affect sentencing decisions in terms of type and length of sanctions?

This systematic review will supplement existing research and recent meta-analytic reviews by determining whether empirical research aligns with current legislation and practice. This review includes multiple judicial decisions, focuses on experts instead of only (specific) diagnoses and includes multiple research designs (cf. Berryessa & Wohlstetter, 2019; Cappon & Vander Laenen, 2013; Kois & Chauhan, 2018; Tsimploulis et al., 2018). The goal is to benefit law and psychology scholars and practitioners by summarizing and evaluating a complex body of international research while taking different legal standards into account.

2. Method

This systematic review provides an in-depth synthesis and evaluation of available research with respect to differences in legal standards across jurisdictions. To systematically review existing literature on the relationship between forensic mental health expertise and judicial decision-making in a criminal trial, we searched multiple electronic databases for journal articles and dissertations with a focus on the relationship between forensic mental health expertise and different judicial decisions in a criminal trial.

2.1. Search strategy

Between April 16th 2018 and May, 7th 2019 the following databases were searched to locate possible relevant studies: Web of Science, Academic Search Premier, Criminal Justice Abstracts, PsycINFO, PsycArticles, Psychology and Behavioral Sciences Collection, Sociological/Social Services Abstract, PubMed and ProQuest dissertations and theses. In order to systematically search each database, a search string was created using combinations of keywords and synonyms related to 1) a forensic setting (forensic*, crim*, court, legal*, jur*, jud*) of 2) mental health expertise (mental disorder*, mental ill*, “mental disease*”, psych*, mental, neuro*, bio*, genetic*, expert*, testimon*, report*, info*, eviden*) relating to 3) judicial decisions (guilt*, eviden*, proof, prove, insan*, “GBMI”, “NGRI”, convict*, verdict*, acquitt*, sentenc*, punish*, incarcerat*, detention, “involunt* commit*”, “recidivis* risk*”, danger*, “diminish* responsib*”, “criminal responsib*”, culpa*, “mens rea”, mitigat*, aggravat*). Since the focus was on forensic mental health expertise in general and because we were interested in the mechanisms of decision-making, no key words on specific disorders were included. Additionally reference lists of included studies were searched to locate any other relevant studies that were not hit in the database search.

2.2. Study selection

To be included in this review a study were to meet the following inclusion criteria: I) an empirical study; II) in a journal or dissertation with III) a quantitative research design studying IV) a relation between forensic mental health expertise and a judicial decision in a criminal trial V) concerning an adult defendant. As a result of practical limitations only studies published in English, Dutch or German were considered for inclusion (VI). Relevant studies were independently assessed and selected by the first author and a master's student.

The focus of the expertise was on mental illness or disorder in a defendant or offender. Since we were interested in the content and/or type of expert testimony and not the admissibility or credibility of the expert testimony (*Daubert* criteria), no further criteria were set for the type of forensic mental health expert. The testimony by the expert could be presented through a report or as a (written) testimony and should focus on the mental health of the defendant at the time of the alleged crime. If a study compared experimental conditions, a condition without forensic mental health expertise or information on mental disorder had to be present or there had to be a comparison of different types of mental disorders. The context of the study was a criminal trial. Any pre-trial decisions (e.g. competency to stand trial or pre-trial (in) sanity evaluations; see Pirelli, Gottdiener, and Zapf (2011) respectively Kois and Chauhan (2018) for a meta-analysis) or decisions in a civil procedure (e.g. sexual violent predator trial) were excluded. Furthermore, a study needed to (partially) focus on a definitive decision (i.e. guilt or sentencing) in a trial in order to be included. Studies exclusively focusing on particular elements of a judicial decision (e.g. evaluate extent of future dangerousness in death penalty decisions) as an outcome were therefore also excluded to optimize comparability between studies.

Finally, only studies with adult defendants were included in this review to further ensure comparability between studies. Criminal procedure and sanctions for juveniles can be different to procedures and sanctions for adults (see Cappon & Vander Laenen, 2013 for a review).

2.3. Data extraction

After study selection and inclusion, relevant information to address the main objectives of this review were systematically extracted from the individual studies using a standardized format (adapted from the Cochrane Collaboration, Higgins & Green, 2008). Information on study characteristics (e.g. country of data collection, sample, sample size, sample selection, research design, instruments) was documented. If a study used an experimental design, the number of experimental conditions was noted to determine the ratio of number of participants to number of conditions. Furthermore, information on the type of expert (e.g. psychologist, psychiatrist, neurologist), diagnosis and offense were extracted. Finally, statistical results on the relation between (the content of) forensic mental health expertise and judicial decisions were collected.

Studies were evaluated using the following criteria: a) study design (e.g. experimental or observational) b) sample size (i.e. in experiments we used the ratio of participants to number of conditions), c) sample selection, d) type of decision and e) type of information or evidence (e.g. psychological or biological expertise, images).

3. Results

The total number of initial hits from the combined databases was 12.278.[2]

Initial screening of title and abstract of these hits using the eligibility criteria resulted in 132 unique abstracts. Upon further full text examination, 100 studies were eliminated because they did not meet the set eligibility criteria. Ultimately it was decided to exclude another 15 studies were because the focus of these studies was specifically on the battered woman syndrome (BWS) (Criterium VII; see Fig. 1). This syndrome is very specific to a type of crime, offender and context in

[2] This number includes duplicates between and within databases. Duplicates of relevant studies were removed later in the selection process.

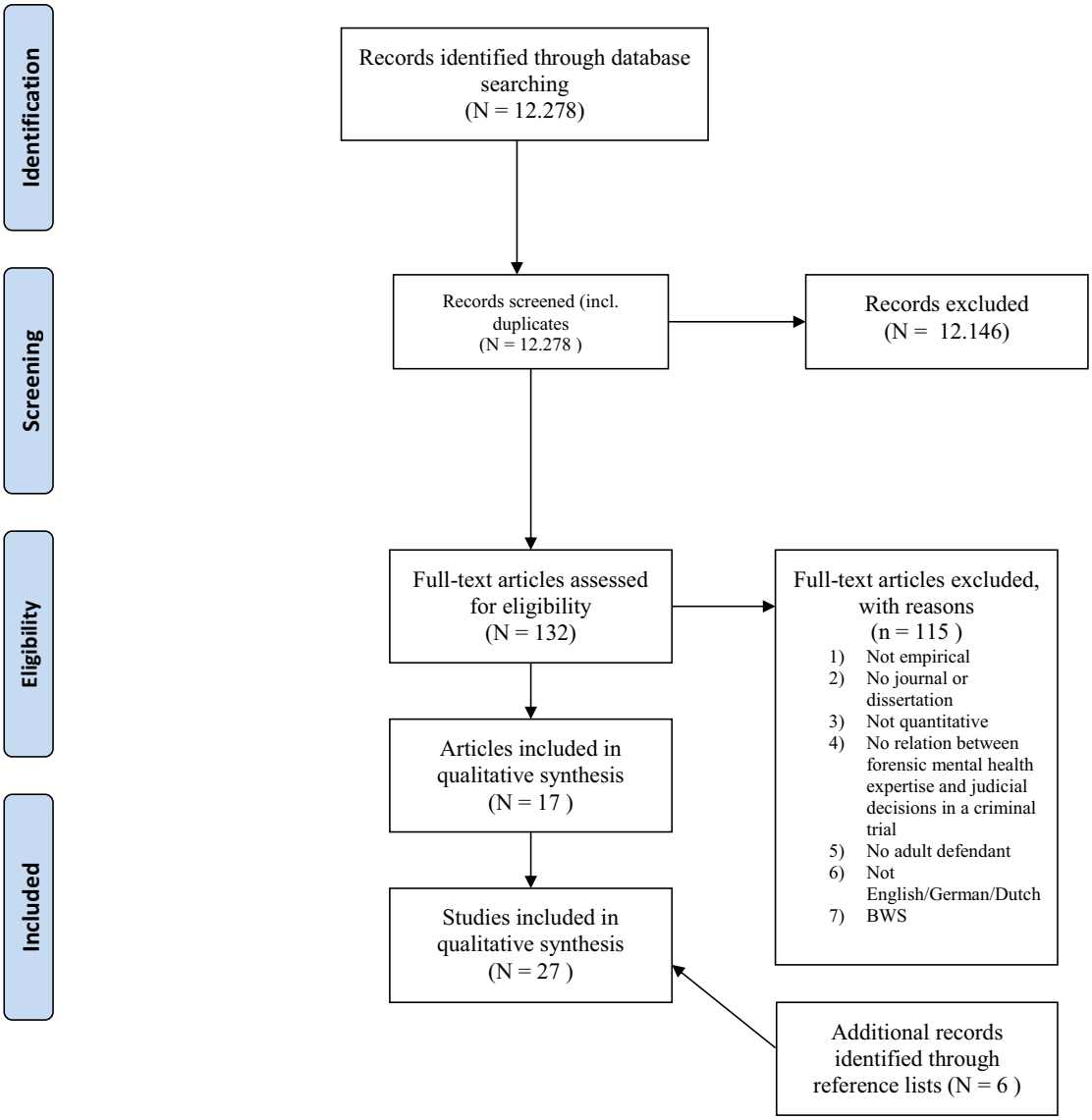

Fig. 1. Flowchart study selection (Moher, Liberati, Tetzlaff, Altman, & The Prisma Group, 2009).

which this crime occurs. Therefore this type of disorder is less comparable to other mental disorders in a diversity of contexts. This selection resulted in the inclusion of 16 articles and one dissertation. In two articles (Saks, Schweitzer, Aharoni, & Kiehl, 2014; Schweitzer et al., 2011) multiple experiments with unique samples were conducted, which resulted in a total of 21 included studies. After hand searching the reference lists of the included studies, another six additional studies were included. Therefore a total of 27 studies were included in this review. The selection process is presented in a flowchart in Fig. 1.

Information provided by forensic mental health experts can be used in different stages in the criminal justice system (Heilbrun, 2006). Studies are categorized according to the different types of decisions as presented in the research questions, namely guilt and sentencing. An overview of study characteristics and main results is provided in Table 2. Information on study characteristics, type of forensic mental health expertise, offenses and diagnosis are presented (also see Table 2) before discussing main findings according to judicial decision.

3.1. Study characteristics

Included studies (N = 27) were conducted between 1987 and 2018 with >75% after 2000, which underlines the recent interest in this topic. The majority of studies (70%, n = 19) were conducted in the United States. The remaining studies were conducted in Canada (n = 5) (Blais, 2015; Blais & Forth, 2014; Lloyd et al., 2010; Rice & Harris, 1990; Rogers et al., 1992), France (n = 1) (Finkelstein & Bastounis, 2010), the United Kingdom (n = 1) (Maras et al., 2019) and the Netherlands (n = 1) (Rassin, 2017). The vast majority (89%, n = 24) of studies had an experimental design using a case vignette.

3.1.1. Sample characteristics

Sample sizes varied between 53 and 896 participants with a majority being in the role of a mock juror. Most participants were female. Most defendants and offenders were male. Samples were selected from student populations, the internet, a research center, workshops or after actual jury duty. Remarkably, only one study used professional judges as participants (Rassin, 2017). Additionally, a minority of studies did report on jury eligibility of their student or community participants (Boyle, 2016; Finkelstein & Bastounis, 2010; Gurley & Marcus, 2008; LaDuke et al., 2018; Maras et al., 2019; Rogers et al., 1992).

The remaining studies (n = 3) had an observational, cross-sectional design based on analysis of patient files in a maximum security psychiatric institution with patients who were found NGRI with a matched

Table 2
Included studies.

Study		Design	Participants		FMHE	Diagnosis[1]	Crime[2]	Other factors	Judicial decision			
									Guilt		Sentencing	
			N	Sample					Fact (*Actus reus*)	Intent (*mens rea*)	Custody	Death penalty
Hinkle, Smeltzer, Allen, and King (1983)	US	E	320	Students (n = 160) Jurors (n = 160)	Psychologist vs psychiatrist testimony	Unknown	Murder	N/A	N/A	−[a]	N/A	N/A
Finkel et al. (1985)	US	E	132	Students (with and without legal knowledge)	Testimony, expert unknown	Epilepsy Paranoid schizophrenia Stress Chronic alcoholism Split-brain	Homicide	N/A	N/A	Epilepsy: − Paranoid schizophrenia.: − Stress: − Chronic alcoholism.: + Split brain: 0	0[b]	N/A
Roberts, Golding, and Fincham (1987)	US	E	181	Students	Psychiatrist and clinical psychologist	ASPD Schizotypical personality disorder Paranoid schizophrenia: o Unrelated to crime o Related to crime	Murder	Planfulness	N/A	Severity of illness: − Schizophrenia X[c] Planfulness: +[d]	N/A	N/A
Rice and Harris (1990)	C	CS	148	Male patients in maximum security psychiatric institution	Psychiatrist	Schizophrenia[3] Psychotic disorder Personality disorder	(Attempted) murder Assault	Severity offense	N/A	Psychotic disorder: − Severity offense: −	N/A	N/A
Rogers, Bagby, and Chow (1992)	C	E	460	Students Community sample	Psychiatrist	Psychotic/ paranoid disorder Alcoholism	Homicide	N/A	N/A	Psychotic/ paranoid disorder cf. alcoholism: −	N/A	N/A
Gurley and Marcus (2008)	US	E	396	Students	Psychiatrist and psychologist testimony	Psychosis[4] Psychopathy[5]	Murder	Neuroimage TBI	N/A	Psychosis: − Neuroimages: − TBI: −	N/A	N/A
Rendell, Huss, and Jensen (2010)	US	E	383	Students	Mental health expert testimony	Psychopathy Schizophrenia	Second-degree murder	Evidence: biological or psychological (MMPI-2) Evidentiary strength insanity defense: moderately strong or moderately weak	N/A	Psychopathy or schizophrenia: 0 Evidentiary strength: − Biological evidence: −	0	N/A
Schweitzer et al. (2011)	US	E	1) 237 2) 294 3) 512 4) 433	Community sample	Evidence by a clinical psychologist, clinical neuropsychologist or neurologist	Personality disorder	1) Armed robbery + homicide 2) Armed robbery + assault 3) Assault 4) Assault	Neurologist information: structural/functional damage, neuroimage/no neuroimage Perceived control	N/A	1) 0 2) 0 3) Perceived control: − 4) Perceived control: − Neuroimage: −	1) 0 2–4) Perceived control: − Length: −	N/A
Blais and Forth (2014)	C	E	247	Students and community sample	Clinical psychologist	Psychopathy, ASPD/CD	Aggravated assault	Age Gender	N/A	Psychopathy: + ASPD/CD: + Age: 0 Gender: 0	N/A	N/A

(*continued on next page*)

Table 2 (*continued*)

Study		Design	Participants		FMHE	Diagnosis[1]	Crime[2]	Other factors	Judicial decision			
			N	Sample					Guilt		Sentencing	
									Fact (*Actus reus*)	Intent (*mens rea*)	Custody	Death penalty
Maras, Marshall, and Sands (2019)	UK	E	160	Mock jurors: students and community	Forensic psychiatrist	Autism spectrum disorder[6]	Assault and battery	N/A	N/A	–	N/A	N/A
Mowle, Edens, Clark, and Sörman (2016)	US	E	419	Community member summoned for jury duty	Psychologist	Psychopathy Schizophrenia	Robbery and assault	Political orientation Neuroscientific evidence	Psychopathy: + Neuro: 0 Schizophrenia: − for liberals	N/A	Psychopathy: + Neuro: 0	N/A
Rassin (2017)	NL	E	53	Judges	Psychiatrist	Psychopathic personality and ASPD	Homicide	N/A	+	N/A	N/A	N/A
Finkelstein and Bastounis (2010)	FR	E	198	Students (n = 93) Future magistrates (n = 105)	Psychologist	No disorder: response to Rorschach test	Assault causing death (no intent)	Knowledge of criminal law Deliberation Crime scene photo	N/A	N/A	Aggressive response: − Aggressive response and no legal knowledge: −	N/A
Lloyd, Clark, and Forth (2010)	C	CS	136	Court transcripts	Unknown	Psychopathy (PCL-R)	67,9% sex offenses	Treatment amenability Recidivism risk	N/A	N/A	Psychopathy: 0 Treatment amenability: − (PCL-R, DO)	N/A
Blais (2015)	C	CS	86	Court transcripts	Psychiatrist or psychologist testimony	ASPD/ psychopathy[7]	60% sex offenses	Risk management Treatment amenability	N/A	N/A	ASPD/ psychopathy: 0 Treatment and risk: +	N/A
LaDuke, Locklair, and Heilbrun (2018)	US	E	896	Community sample	Psychological, neuropsychological, structural neuroimaging, functional neuroimaging expertise by video testimony	No diagnosis present	Burglary Aggravated assault	Fact evidence Violence risk Recidivism risk Culpability	N/A	N/A	Fact evidence for burglary: − Violence risk: 0 Recidivism risk: 0 Culpability: 0	N/A
Allen, Vold, Felsen, Blumenthal-Barby, and Aharoni (2019)	US	E	369	Community sample	Evidence by a neurologist or psychologist	Impulse control disorder	Sexual assault	Treatability	N/A	N/A	Prison: Neurologist: − (vs psychologist) Psychologist: − (vs healthy) Treatability: − MH X treatability: 0 Hospitalization: Neurologist: + (vs psycho) Psychologist: + (vs healthy) Treatability: − MH X treatability: 0	
Edens, Desforges, Fernandez, and Palac (2004)	US	E	338	Students	Psychologist testimony	Psychopathy[8] Psychosis[9] (prosecution) No disorder (defense)	Murder	Dangerousness	N/A	N/A	N/A	Dangerousness: + Death penalty: 0
Edens et al. (2005)	US	E	231	Students	Psychologist testimony	Psychopathy[10] Psychosis[11]	Murder	Dangerousness	N/A	N/A	N/A	Dangerousness: + Death penalty: +

(*continued on next page*)

Table 2 (*continued*)

Study		Design	Participants		FMHE	Diagnosis[1]	Crime[2]	Other factors	Judicial decision			
			N	Sample					Guilt		Sentencing	
									Fact (*Actus reus*)	Intent (*mens rea*)	Custody	Death penalty
						(prosecution) No disorder (defense)						
Reardon et al. (2007)	US	E	230	Community sample	Unknown	Mental retardation[12] Paranoid schizophrenia	Robbery ending in murder	Severity of mental disorder Heinousness of crime Timing of decision	N/A	N/A	N/A	Heinousness X severity of mental problems: + Pre-trial: − Sentencing: +
Cox, DeMatteo, and Foster (2010)	US	E	144	Students	Mental health expert	Psychopathy (PCL-R)	Murder	Risk for future violence in detention	N/A	N/A	N/A	Psychopathy: 0 Risk: +
Saks et al. (2014)	US	E	1) 825 2) 882	Community sample	Psychologist or neuroscientific testimony	Psychopathy Schizophrenia[13]	1) Murder 2) Murder	Type of evidence (clinical, genetic, neurological, neuroimage)	N/A	N/A	N/A	1) Psychopathy, and neuroimage: − 2) Psychopathy: +
Boyle (2016)	US	E	705	Students (n = 354) Community sample (n = 351)	Clinical psychologist testimony	Alcohol use disorder[14] (defense)	Murder	N/A	N/A	N/A	N/A	Students: − Community: −

Note. FMHE = forensic mental health expertise; US = United States; E = experiment; N/A = not applicable, a = negative effect or relation; b = no (significant) effect or relation; c = interaction; d = positive effect or relation; C = Canada; CS = cross sectional; ASPD = antisocial personality disorder; TBI = traumatic brain injury; CD = conduct disorder; UK = United Kingdom; MMPI-2 = Minnesota Multiphasic Personality Inventory-2; NL = Netherlands; FR = France; PCL-R = Psychopathy Checklist—revised; DO = dangerous offender; MH = mental health status.

[1] The mental health problems/disorders are copied from each particular study, therefore there is no uniformity in terminology.

[2] The crimes are copied from each particular study, therefore there is no uniformity in terminology.

[3] Based on DSM III criteria (American Psychiatric Association, 1987).

[4] Based on criteria for schizophrenia.

[5] Based on criteria for psychopathy.

[6] Based on DSM-5 criteria on autism spectrum disorder (American Psychiatric Association, 2013).

[7] Based on item from Level of Service Management/Case Inventory (LS/CMI).

[8] Diagnosed through Factor 1 items from PCL-R.

[9] Based on DSM-IV criteria for schizophrenia.

[10] Diagnosed through Factor 1 items from PCL-R.

[11] Based on DSM-IV criteria for schizophrenia.

[12] Defined according to the 2002 American Association on Mental Retardation (Luckasson et al., 2002).

[13] Based on criteria in DSM IV (American Psychiatric Association, 2000).

[14] Based on DSM-V criteria (American Psychiatric Association, 2013).

control group (Rice & Harris, 1990). The other two studies were based on trial transcripts of verdicts (Blais, 2015; Lloyd et al., 2010). Sample sizes varied between 86 and 148 cases. The majority in the samples studied was male.

3.1.2. Type of forensic mental health expert

The majority of studies included expert testimony by a psychologist and/or psychiatrist. Additionally, a number of studies ($n = 7$) included testimony by neuropsychologists or neurologists (Allen et al., 2019; LaDuke et al., 2018; Mowle et al., 2016; Saks et al., 2014; Schweitzer et al., 2011), with another number also including neuroimages as evidence (Gurley & Marcus, 2008; Mowle et al., 2016; Saks et al., 2014; Schweitzer et al., 2011). Five studies did not specify the type of expert used (Finkel, Shaw, Bercaw, & Kock, 1985; Lloyd et al., 2010; Reardon, O'Neil, & Levett, 2007; Rendell et al., 2010).

3.1.3. Offense type

In the experimental studies all but two studies based their vignette on a violent offense (varying from assault to several degrees of homicide). The other two focused on respectively sexual assault (Allen et al., 2019) and a comparison between a violent offense (aggravated assault) and a property offense (burglary) (LaDuke et al., 2018). In the observational, cross-sectional studies focusing on preventive detention decisions in Canada, the majority of offenders were convicted for a sexual offense (Blais, 2015; Lloyd et al., 2010).

3.1.4. Diagnosis

In a majority of the studies at least one personality disorder was diagnosed (Blais, 2015; Blais & Forth, 2014; Cox et al., 2010; Lloyd et al., 2010; Rassin, 2017; Schweitzer et al., 2011). Most studies used multiple conditions of specific disorders, such as antisocial personality disorder or psychopathy as well as different varieties of psychotic disorders, such as schizophrenia (Edens et al., 2004; Edens et al., 2005; Gurley & Marcus, 2008; Mowle et al., 2016; Rendell et al., 2010; Rice & Harris, 1990; Roberts et al., 1987; Saks et al., 2014). Other diagnoses included alcohol use disorder/alcoholism (Boyle, 2016; Rogers et al., 1992), impulse control disorder (Allen et al., 2019), autism spectrum disorder (Maras et al., 2019), mental retardation, paranoid disorder and stress (Finkel et al., 1985; Reardon et al., 2007). Three studies did either not report a disorder (Hinkle et al., 1983) or explicitly stated that no disorder was present (Finkelstein & Bastounis, 2010; LaDuke et al., 2018)

3.2. Forensic mental health information in judicial decisions

In line with the presented legal framework and research questions, the main findings are discussed in three categories of decisions: 1) guilt: *mens rea*, 2) guilt: *actus reus*, 3) sentencing; length of custodial sentences and death penalty.

3.2.1. Guilt: mens rea

A total of 13 studies researched decisions of the *mens rea* element in a verdict. Seven studies (54%) specifically focused on the relationship between forensic mental health expertise and insanity verdicts. One study was conducted in Canada (Rice & Harris, 1990), the others were all from the United States. Elements of the insanity defense may vary across different jurisdictions, because they adopt different legal tests to asses legal insanity (e.g. M'Naghten Rule, American Law Institute (ALI) test). However, they essentially focus on whether a defendant had a mental disease or disorder at the time of the alleged crime, whether this disorder substantially impaired the ability to appreciate the nature of the actions or to differentiate right from wrong. Studies that made explicit which type of legal test was used in their research used the ALI test (Gurley & Marcus, 2008; Roberts et al., 1987). However, one study indicated that type of jury instruction and type of insanity test does not significantly affect jurors' decisions (Finkel et al., 1985), therefore no further distinctions will be made.

The remaining six studies[3] (46%) focused on *mens rea* as an element of a guilty verdict, thereby focusing on level of intent to qualify the offense (e.g. first-degree murder, second-degree murder, manslaughter) (Schweitzer et al., 2011), or criminal responsibility (Blais & Forth, 2014; Maras et al., 2019). All studies had an experimental design with a case vignette.

Results of studies on an insanity verdict show a consistent main effect of expert testimony on verdicts of not guilty by reason of insanity (henceforth NGRI) versus guilty verdicts by (student) mock jurors in case of a violent offense. The results can be elaborated upon by diagnosis, offense characteristics and type of evidence. Results of studies focusing on the *mens rea* element in a guilty verdict were more varied depending on diagnosis, offense characteristics and type of evidence. Defendants were more likely to be found NGRI in case of a diagnosis of a psychotic disorder (e.g. schizophrenia) than in case of a psychopathic/antisocial personality or alcoholic disorder (Finkel et al., 1985; Roberts et al., 1987; Rogers et al., 1992). However, it was difficult to determine whether presence of *any* diagnosis affected insanity decisions, because none of these studies had a control condition where no disorder or expert testimony was present. One study focusing on a verdict of guilty or not guilty (in a self-defense case) did use a control group with no disorder present and found that a diagnosis of antisocial personality disorder or psychopathy increased the likelihood of a guilty verdict compared to the control group (Blais & Forth, 2014). Finally, in case of a diagnosis of autism spectrum disorder, a guilty verdict was less likely since the defendant was judged as less responsible than when the disorder was not present (Maras et al., 2019).

In two studies (Rice & Harris, 1990; Roberts et al., 1987) characteristics of the offense (i.e. seriousness, planfulness) were found to interact with the diagnosis on the verdict. Although characteristics of the offense are in principle irrelevant to the determination of insanity (Roberts et al., 1987; State v. Nuetzel, 1980), serious but unplanful offenses did result in more NGRI verdicts but only for a diagnosis of schizophrenia with delusions relevant to the crime.

When biological (e.g. traumatic brain injury) or neurological evidence (MRI image) for a disorder was presented, mock jurors gave more NGRI verdicts (Gurley & Marcus, 2008; Rendell et al., 2010) than when this evidence was absent. One study reported that the decision of insanity was affected by the type of expert (psychologist or psychiatrist) and testimony (clinical or actuarial) and the conclusion (sane or insane) of this testimony irrespective of diagnosis (Hinkle et al., 1983). Students and jurors were likely to decide according to the conclusion of the expert about (in)sanity. Additionally, jurors who were presented with actuarial testimony by a psychologist gave a NGRI verdict more often compared to clinical testimony (Hinkle et al., 1983). Three of the four studies by Schweitzer et al. (2011) found no direct effect of different types of expert testimony (i.e. clinical psychologist, clinical neuropsychologist, neurologist, neuroscientist with and without neuroimages as evidence) on the verdict (e.g. not guilty, first-degree murder, second-degree murder, manslaughter) irrespective of severity of the offense (assault, armed robbery and homicide). The primary determinant of a guilty verdict was the perception of behavioral control. Compared to the control condition without an expert, the presence of any expert testimony was related to lower levels of perceived control by the defendant. Only the final experiment showed that addition of a neuroimage to the testimony reduced the severity of the charged offense (simple assault instead of aggravated assault) compared to clinical information by a psychologist or no expert at all.

Overall, the results demonstrate that irrespective of study design and type of legal test, psychotic defendants of serious, violent crimes

[3] The study of Schweitzer et al. (2011) reported four separate studies and a meta-analysis of those studies (not included), therefore this section contains only two publications but six studies are discussed.

are found not guilty by reason of insanity more often than defendants with more psychopathic/antisocial personality disorders (Finkel et al., 1985; Rice & Harris, 1990; Roberts et al., 1987; Rogers et al., 1992). Defendants with a diagnosis of psychopathy or antisocial personality disorder were found guilty more often (Blais & Forth, 2014), while a diagnosis of autism spectrum disorder reduced ratings of responsibility and as a result a guilty verdict was less likely (Maras et al., 2019). This result was found in both experimental studies with case vignettes as well as in an observational, cross-sectional study based on files from patients in a maximum security hospital (Rice & Harris, 1990). Findings on an effect of neurobiological evidence on the verdict were not consistent. Although some support was found that the presence of neuroimages results in more NGRI verdicts or less *mens rea* (Gurley & Marcus, 2008; Schweitzer et al., 2011), no firm conclusions can be drawn.

3.2.2. Guilt: actus reus

Only two recent studies focused on the possible prejudicial effect of forensic mental health information on guilt in terms of *actus reus* (Mowle et al., 2016; Rassin, 2017). Both studies were experiments and reported a positive main effect of information on a mental disorder in the defendant and decisions of guilt. Mowle et al. (2016) found that testimony on the presence of psychopathy in a defendant charged with robbery and assault, significantly increased guilty verdicts. This result was not found for the diagnosis of schizophrenia. Neuroscientific evidence of a disorder did not affect verdict choice. Similarly, Rassin (2017) focused on the effect of a psychiatric diagnosis (antisocial personality disorder and psychopathy) on evaluation of other available evidence (i.e. fingerprint evidence) and how this subsequently affected conviction rates. He found a positive effect of a psychiatric diagnosis on conviction. Judges were more convinced of guilt and had a higher conviction rate in a homicide case where the defendant had a psychopathic personality and antisocial personality disorder. Judges also perceived the other presented evidence in this case (i.e. fingerprint evidence) as stronger than judges in the condition without any psychopathology. This study by Rassin (2017) was the only included study that used professional judges as participants. However, both conditions in the experiment contained a relatively small sample of participants (n = 24 and 29).

As a result of only two studies in this review with a focus on possible prejudicial effects of forensic mental health information on decisions of guilt in terms of *actus reus*, any conclusions are premature. Nonetheless, it appears that this effect depends on the type of disorder present in the case since a positive effect was found for the disorder of psychopathy but not for schizophrenia.

3.2.3. Sentencing

Of the total of 27 included studies, 19[4] (partially) focused on the relation between forensic mental health expertise and sentencing decisions. Sentencing decisions are categorized into decisions on length of sanctions or recommendation of the death penalty.

3.2.3.1. Length of sanctions. Thirteen studies researched the relationship between forensic mental health expertise and length of the prison sentence imposed. Two studies were based on observational, cross-sectional data (Blais, 2015; Lloyd et al., 2010), the other 11 studies had an experimental design with a case vignette.

Results on the relationship between forensic mental health expertise and sentence length were inconsistent and almost no direct effects were found. Three studies did not report a significant relation between forensic mental health expertise and length of incarceration (Finkel et al., 1985; LaDuke et al., 2018; Rendell et al., 2010). Main effects were found in two studies, although in opposite directions. First, Mowle et al. (2016) reported a significant positive correlation between diagnosis of psychopathy and recommended sanction length. They found no effect of neuroscientific evidence. Finkelstein and Bastounis (2010) found a main negative effect of information provided by a psychologist on sentence length. An aggressive response on a Rorschach test (Exner & Erdberg, 2003) resulted in a significant lower sentence compared to a non-aggressive response to this test. They also reported an interaction effect. In the aggressive response condition, participants without legal knowledge were more lenient in sentencing than the future magistrates.

Six studies reported a relationship between forensic mental health expertise on sentencing length but this relation was affected by other factors in the case or trial: treatability, future dangerousness or recidivism risk and perceived behavioral control.

Two studies from Canada focused on the reliance of judges on expert testimony in preventive detention decisions. Following a conviction for a violent or sexual offense, the prosecution can request a preventive detention resulting in a sentence for a dangerous offender (DO) or long-term offender (LTO). The majority of DO are serving indeterminate sentences. LTOs are supposed to be safely managed in the community after serving a determinate sentence. In making a final decision, judges must consider recidivism risk, treatment amenability and risk management (Blais, 2015; Lloyd et al., 2010). Both studies reported that a diagnosis of psychopathy affected experts' ratings of treatment amenability and risk management. A negative assessment of treatment amenability and risk management resulted in more indeterminate (DO) sentences (Blais, 2015; Lloyd et al., 2010). Three other studies (Schweitzer et al., 2011) reported that presence of any expert testimony led to lowered perceived control of the defendant on his actions, which resulted in more lenient sentences. No significant differences between types of testimony (e.g. psychological or neuroscientific) were found. The majority of mock jurors in one of the studies by Schweitzer et al. (2011) also reported that the sentence should be spent in a treatment center in case mental health problems were present. The finding that offenders with mental health problems should spent their sentence in treatment instead of prison was also supported by the study of Finkel et al. (1985), although this differed according to type of disorder. Defendants with schizophrenia, a split-brain or stress were to spend their time in a psychiatric hospital, while a chronic alcoholic was more likely to be sent to prison. Finally, Allen et al. (2019) reported that expert information on an impulse disorder resulted in lower prison sentences, while concurrently increasing length of involuntary hospitalization. Neurobiological evidence resulted in lower prison sentences and increased length of involuntary hospitalization compared to psychological evidence. Treatability of the disorder also resulted in lower prison sentences as well as decreased the length of recommended hospitalization. However, no interaction between mental health status and treatability was found (Allen et al., 2019).

To conclude, the relationship between forensic mental health expertise and decisions on custody length is not consistent. Almost no direct effects were reported, regardless of research design or sample type. Approximately a quarter of studies in this category reported no significant effects. Other studies stated that other factors such as perceived control of behavior, future risk and treatability affected the relationship between mental health expertise and length of custody.

3.2.3.2. Death penalty. Six out of the 19 included studies researching sentencing decisions focused on the death penalty versus a life sentence in prison. In the United States, criteria for a death penalty recommendation include the defendant being a continued danger to society and absence of any mitigating circumstances (Montgomery, Ciccone, Garvey, & Eisenberg, 2005). Forensic mental health expertise can provide information for both these criteria. All studies had an experimental design using a case vignette and all made explicit that a sample of death-qualified jurors was used.

[4] Due to the fact that a number of studies (n = 7) focused on guilt as well as sentencing decisions, they are included in both categories. Therefore the sum of studies in each category exceeds the total number of 27 included studies.

Two studies did not report a significant main effect of mental health expertise on the recommendation of the death penalty (Cox et al., 2010; Edens et al., 2004). Edens et al. (2004) reported that psychopathy increased ratings of risk of future violence, although this did not affect death penalty recommendations. Cox et al. (2010) reported that risk of future violence, regardless of a mental disorder, significantly increased death penalty recommendation. The majority of studies reported a main effect of forensic mental health expertise on death penalty recommendation. The direction of this effect differed according to diagnosis, type of evidence and timing of expert testimony in a trial:

The death penalty was recommended more often with the diagnosis of psychopathic disorders compared to psychotic disorders or no disorder (Edens et al., 2005; Saks et al., 2014). Psychopathic offenders were judged as being more dangerous than healthy offenders and were considered less treatable (Edens et al., 2004; Edens et al., 2005; Saks et al., 2014). This finding implies that psychopathy is not considered a mitigating circumstance. Defendants suffering from a psychotic disorder were less likely to receive a death penalty recommendation, even though no differences between psychopathic and psychotic disorders were found regarding judgment of future dangerousness (Edens et al., 2004; Edens et al., 2005). This result could imply that a psychotic disorder is considered a mitigating circumstance in itself.

When a diagnosis of psychopathy was supported by neuroimage evidence, the percentage of recommended death penalties marginally decreased (from 62% to 47%, $p = .12$) (Saks et al., 2014). However, when neuroimage evidence for schizophrenia was presented, differences in death penalty recommendations between psychopathy and schizophrenia disappeared and the defendant with schizophrenia was judged more responsible than without neuroimage evidence (Saks et al., 2014).

One study focused specifically on the effect of expert testimony about an alcohol use disorder on death penalty recommendations (Boyle, 2016). Presence of such expert testimony resulted in less inclination towards the death penalty during the trial, independent of an alcohol use disorder. This result was only found in the college sample, not in the community sample. However, in the eventual decision of punishment, only gender and punitiveness of the jurors were significant predictors of the death penalty in both samples: males and more punitive oriented jurors voted for the death penalty. Testimony on alcohol use disorder did not have a significant effect on death penalty recommendation. This finding suggests that this diagnosis is neither used as a mitigating or aggravating circumstance in the sentencing phase of a capital trial.

Further support for different effects during the course of a trial (Boyle, 2016), was found by Reardon et al. (2007). Their study focused on effects of the presence and severity of mental illness or mental retardation on death penalty recommendations in combination with manipulations of the severity of the crime and timing of the hearing (pre-trial or during sentencing). When jurors were presented with severe mental health problems in a pre-trial hearing, the probability of reaching a death verdict was lower than when they learned of the severe mental health problems during the sentencing phase of the trial.

Overall, the results suggest an effect from forensic mental health expertise on death penalty verdicts. However, the direction of the effect varies and differed according to diagnosis, type of evidence and timing of expert testimony in a trial.

4. Discussion

The aim of the current review was to provide a synthesis of empirical, quantitative research on the effects of forensic mental health expertise on judicial decision-making in a criminal trial. This review highlights what we know, what we do not know and how to guide future research. The results of this review show the diversity of effects and thereby use of forensic mental health expertise on different judicial decisions.

The majority of included studies in this review was conducted in the United States with the use of (student) mock jurors and a focus on sentencing decisions. Correspondent to the legal framework described earlier (see Table 1), empirical findings from this review are mostly consistent with expected use of forensic mental health expertise in multiple judicial decisions.

4.1. Guilt: mens rea

The most consistent results were found for studies concerning criminal responsibility in terms of an insanity defense. Irrespective of study design, forensic mental health expertise on a psychotic defendant resulted in more decisions of NGRI than in a case of a defendant with a psychopathic personality disorder (Finkel et al., 1985; Rice & Harris, 1990; Roberts et al., 1987; Rogers et al., 1992).

Controversies in the literature consist on whether psychopaths can be considered cognitively impaired due to lack of moral understanding (Fine & Kennett, 2004; Stern, 2014). These differences can also be found in legislation and practice across different jurisdictions: in European jurisdictions, a defendant with a personality disorder may be judged sufficiently mentally ill which may result in an NGRI verdict. In contrast, personality disorders are generally not considered to impair criminal responsibility in North American jurisdictions (Grossi & Green, 2017). Psychopathy is not considered a mental disease or defect that impairs rationality or capacity to control behavior (Model Penal Code, 1962; Morse, 2011; Stern, 2014). The studies included in this review are therefore in line with the current legislation and practice of the insanity defense in the United States. The results also provide support for the attribution theory. More responsibility is attributed to people who have personality traits that are considered more controllable such as lack of remorse, deceptive behavior and irresponsibility (Edens et al., 2005; Weiner, 2010), which can be characteristics of an antisocial personality disorder. According to the results of this review, in cases of psychopathy the insanity defense was accepted less frequently and therefore responsibility for the crime was assumed. Effects of neurobiological evidence were not consistent, although presence of neuroimages sometimes seems to result in more NGRI verdicts (Gurley & Marcus, 2008; Schweitzer et al., 2011). Previous literature expressed concerns that neuroscientific information, and especially neuroimaging, can result in an (attentional) bias in judicial decision-making, by being interpreted as an objective finding or explanation of disease and behavior (Scarpazza, Ferracuti, Miolla, & Sartori, 2018). Since the results in this review were not consistent, they do not provide solid support or opposition for this concern.

4.2. Guilt: actus reus

Only two studies focused on possible prejudicial effects of forensic mental health information on decisions of guilt in terms of *actus reus*. Therefore any firm conclusions are premature. Nonetheless, it appears that a possible prejudicial effect depends on the type of disorder diagnosed: a positive effect was found for psychopathy but not for schizophrenia (Mowle et al., 2016; Rassin, 2017). This finding supports the stigma effect of a diagnosis of psychopathy on decisions of guilt. Antisocial behavior is one of the traits consistent with psychopathy, which may result in the association between this disorder and criminal behavior even when it has not yet been proven that the defendant committed the alleged crime (Mossiere & Maeder, 2015).

4.3. Sentencing

In most jurisdictions forensic mental health expertise can be used to support mitigating circumstances for a defendant. Otherwise, information by these experts can also be used to support aggravating claims related to future dangerousness. Empirical findings on sentencing decisions, provide support for both situations; diagnoses of

psychopathy increased perceptions of future dangerousness and poor treatment outcomes and as a result had positive effects on sentence lengths and death penalty recommendation (Edens et al., 2005; Saks et al., 2014). Yet, presence of a disorder could also reduce perceived behavioral control of a defendant and therefore reduce sentence severity (Schweitzer et al., 2011). When forensic mental health expertise was present in a trial but no disorder was diagnosed, no effect on culpability, recidivism risk or sentencing was found, regardless of type of testimony (psychological, neurological with/without images) (LaDuke et al., 2018). These results imply that a diagnosis instead of only presence of an expert had an effect on sentencing decisions. The results provide some support for both a retributive as well as a utilitarian perspective. While the presence of a disorder may decrease the attribution of criminal responsibility, it may also increase the perception of future dangerousness and therefore increase sanction severity. This utilitarian perspective on punishment was also noticed in studies where it also had to be decided in what type of institution the sentence should be spent. The majority of participants decided that in case of a mental disorder, a sentence should be spent in a hospital or treatment center instead of in prison (Finkel et al., 1985; Schweitzer et al., 2011). An increase of length of hospitalization simultaneously decreased the duration of a prison sentence (Allen et al., 2019). This implies support for treatment of a mental disorder in the criminal justice system instead of (only) punishment. No effect of neuroscientific information on sentencing decisions was found.

4.4. Future research

In addition to substantial results regarding the research questions, a number of methodological findings lead to recommendations for future research. First, information on a mental disorder provided by a forensic mental health expert appear to have inconsistent effects depending on type of disorder and whether it is used to emphasize future dangerousness or diminished control over one's actions. Future research should focus on disentangling this possible double-edged sword effect of this information. It is thereby important to focus on the specific circumstances in a case, such as severity and type of crime. All but one study (LaDuke et al., 2018) focused on violent offenses (e.g. assault, homicide) with three studies with a sexual offense (Allen et al., 2019) or a majority of offenders of sex offenses (Blais, 2015). It will be valuable to study whether the effects in current review can be generalized to other offenses in which presence of mental disorders are prevalent, such as arson (Anwar, Långström, Grann, & Fazel, 2011).

Second, research on possible prejudicial effects of forensic mental health expertise is almost non-existent. Even though most findings in current review are conform regulations and legal provisions, Rassin (2017) and Mowle et al. (2016) showed that presence of forensic mental health expertise on psychopathy has a positive effect on determination of *actus reus*, despite this information being irrelevant to this decision in most jurisdictions. The extent to which these unintended effects may occur, also depends on legal standards in different jurisdictions and type of disorder present (Mowle et al., 2016). Future research should clarify this issue.

An important finding was that the vast majority of the included studies was conducted in an adversarial legal system, i.e. the United States. As a result, samples mostly consisted of students as mock jurors who were oftentimes recruited from undergraduate psychology classes in exchange for course credit. Despite the fact that decisions regarding insanity and oftentimes sentencing are determined by juries elected from a community, multiple studies did not report whether their sample was jury eligible (Finkel et al., 1985; Reardon et al., 2007; Rendell et al., 2010; Roberts et al., 1987; Schweitzer et al., 2011). Furthermore, since most student samples consisted of psychology students, it is possible that their attitudes towards mental health and effects on (delinquent) behavior may differ from attitudes held by the general public (Mossiere & Maeder, 2015), despite Finkel et al. (1985) not finding significant differences in NGRI verdicts according to prior knowledge of mental conditions among these students. Included studies reported that students tended to attribute less guilt and more insanity to a defendant as well as more leniency in sentencing decisions compared to actual jurors or future magistrates (Finkelstein & Bastounis, 2010; Hinkle et al., 1983). Surprisingly, only one experimental study had a (small) sample of professional judges (Rassin, 2017). More research should include samples with legal professionals to determine whether the effects from current review can be generalized to professional decision-makers, such as judges. Additionally, studies (in English) in European and inquisitorial jurisdictions are almost absent. Further research is necessary to determine whether the findings in current review can be extended to these jurisdictions.

Another recommendation concerns study design. The majority of included experimental studies had no control condition in which expert testimony or diagnosis was absent. These studies usually contrasted multiple different diagnoses (i.e. psychopathy versus schizophrenia) or different types of expertise (e.g. psychology, neuropsychology). As a result, most findings were limited to contrasts between these different diagnoses or different types of expertise. Therefore it is not clear whether simple presence of mental health expertise or any diagnosis affects decisions. A minority of experiments in this review made use of a control condition (Allen et al., 2019; Blais & Forth, 2014; Boyle, 2016; Edens et al., 2004; Edens et al., 2005; Maras et al., 2019; Schweitzer et al., 2011). Even though a true control condition seems illogical in case of an insanity defense, it would help determine whether a diagnosis such as antisocial personality disorder or psychopathy can significantly result in more NGRI verdicts than when no disorder is present. More research with an improved experimental design is necessary to optimize internal validity. In line with this recommendation, we suggest that future (experimental) research benefits from larger sample sizes to optimize statistical power (Simmons, Nelson, & Simonsohn, 2018). Included studies varied extensively with regard to number of subjects per condition, with some conditions being as low as 10 to 12 subjects (Roberts et al., 1987).

Other factors that need to be taken into account focus on presentation and content of the expert testimony. Not all studies provided testimony by both parties or made use of available legal actions for that specific jurisdiction, such as cross-examination of expert witnesses. Definitions of diagnoses should be as complete and precise as possible. Most recent studies, but not all, based diagnoses on recognized classification systems as the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013) or instruments such as the Psychopathy Checklist-Revised (PCL-R; Hare, Clark, Grann, and Thornton (2000). A recent meta-analysis found that a simple label of a psychiatric disorder, without any traits, had a positive effect on legal sanctions and perceptions of dangerousness as well as a negative effect on treatment amenability, especially in lay people (Berryessa & Wohlstetter, 2019). Therefore it is important to provide a detailed and complete diagnosis with criteria and its relationship with the alleged crime to minimize different perceptions, stereotyping and interpretations of mental disorders and improve internal validity of a study.

4.5. Limitations and conclusions

Some limitations of this review should be taken into account when evaluating the results. First, only published articles (in English) were included. Gray literature is therefore underrepresented, although a dissertation database (ProQuest) was searched. Publication bias could therefore not be ruled out (Rothstein, Sutton, & Borenstein, 2006). Unpublished studies or studies in other languages than English may produce other results.[5] Second, by including studies with different

[5] Studies published in other languages than English may likely come from other legal systems than the adversarial system from the United States.

presentation modus of the expert information, types of evidence and different study designs in multiple jurisdictions can diminish the comparability of studies in this review. However, by combining these different studies, an extensive overview of the current body of literature could be provided.

Despite these limitations, this systematic review is the first to our knowledge to provide an overview of available empirical research studying the effects of forensic mental health expertise on multiple judicial decisions for adult defendants. While the current literature focuses on the intended use of forensic mental health expertise in judicial decision-making, research on possible undesired effects is still in its infancy (Mossiere & Maeder, 2015; Rassin, 2017). Apart from decisions concerning an insanity defense, no systematic effects of forensic mental health information on a diversity of judicial decisions could be distinguished. The diversity (and lack) of results emphasize the need for further research examining this relationship in different phases of the criminal trial and in different legal systems. Since an indication for a pre-trial forensic mental health evaluation is given earlier on in the criminal procedure, this leads to a specific selection of cases (in addition to the general selection and filtering processes in the criminal justice system) in which such an evaluation is more common (e.g. severity of offense, defendant's and offense characteristics etc. zie Van Kordelaar (2002)). Further research should clarify the potential effects this selection may have further down the chain of decision-making.

Expert information can play a crucial role in judicial decisions and have serious consequences for a defendant and society. Therefore it is important to determine and evaluate how different actors in the criminal justice system use this information and to what extent any unwarranted effects might occur. With this review we provide a first step in advancing this research area in order to optimize the use of this valuable information in the criminal justice system.

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