A SCOPING REVIEW OF AUTISM SPECTRUM DISORDER ???

In order to understand literature relevant to various aspects of interface between individuals with autism spectrum disorder (ASD) and the criminal justice system (CJS), a scoping review of the literature was conducted. The scoping review aimed to summarize empirical studies including individuals with ASD and the CJS.

Researchers conducted a search of 13 professional databases and 28 journals using search terms related to both ASD (e.g., autism) and the CJS (e.g., police). Four members of the research team compared decisions for study inclusion at two points: initial screening and final inclusion.

From an initial set of 606 articles that were screened, researchers examined 55 articles and categorized them into five main groups:

1. Prevalence of ASD in CJS settings (27%).
2. Knowledge, perceptions, awareness, and training by CJS professionals (22%).
3. ASD experiences and perceptions of the CJS (18%).
4. Interviewing individuals with ASD in CJS (18%).
5. Characteristics of individuals with ASD in CJS settings (15%).

Based on the sizeable amount of recent publications, there had been a growing interest in researching ASD in the CJS. The largest area of interest was in predicting the amount of contact the CJS has with individuals with ASD. This work also helped to establish what can be expected when looking at the frequency of interaction between people with ASD and law enforcement officers. given that interactions between the CJS and individuals with ASD are not uncommon and may involve individuals with ASD as either victims or perpetrators of crimes. Future research is needed to further document interactions between ASD and the CJS, as well as to improve the training of law enforcement officers on interacting with individuals with ASD.

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REVIEW PAPER

A Scoping Review of Autism Spectrum Disorder and the Criminal Justice System

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Abstract

The authors conducted a scoping review of peer-reviewed, empirical studies to summarize literature examining the interface between individuals with autism spectrum disorder (ASD) and the criminal justice system (CJS). The authors searched 13 professional databases and 28 journals using key terms related to ASD and the CJS. From a total of 678 articles, 55 met inclusion criteria and the authors organized studies into five thematic categories: (a) prevalence of ASD in CJS settings, (b) characteristics of individuals with ASD in CJS settings, (c) ASD experiences and perceptions of the CJS, (d) interviewing individuals with ASD in CJS settings, and (e) knowledge, perceptions, awareness, and training by CJS professionals. The review revealed a growing increase in ASD-CJS research and identified areas of future research.

Keywords Autism · Criminal justice system · Law enforcement officer · Scoping review

Understanding the foundation of autism spectrum disorder (ASD) and criminal justice system (CJS) literature is an important first step to establishing and maintaining positive interactions between CJS professionals, including law enforcement officers (LEOs), and individuals with ASD. With 1 in 59 individuals receiving an ASD diagnosis as of 2018 (Baio et al. 2018), research focused on ASD has also risen dramatically (Magyar 2010). Without considering the increased rate of interactions between LEOs and individuals with disabilities (Debbaudt and Rothman 2001; Henshaw and Thomas 2012), this rising incidence rate alone provides timely justification for a review of research between individuals with ASD and the CJS.

Contact with the CJS can take a variety of forms, including interactions with LEOs in community and home settings, arrest, police custody, interviews with CJS professionals, or while individuals are involved in trial proceedings. King and Murphy (2014) completed a review of individuals with ASD and the CJS, primarily focusing on individuals with ASD who have demonstrated offending behavior. The authors identified seven studies that focused specifically on prevalence rates of ASD in CJS. However, their review drew attention to biased, small samples and "major methodological faults" within these studies (King and Murphy 2014, p. 2729), calling for more robust research based on unbiased samples. Research suggests that individuals with ASD are involved in interactions with LEO personnel as victims, suspects, and witnesses (Mayes 2003; Woodbury-Smith and Dein 2014) as well as in cases of elopement (Anderson et al. 2012). The current review will build upon King and Murphy's (2014) work by including articles that examine interactions with CJS as victims, perpetrators, witnesses, and in other calls (e.g., elopement, domestic dispute).

Decades after the deinstitutionalization of individuals with mental health concerns, LEOs play a critical role as primary gatekeepers to mental health services and the CJS (Lamb et al. 2002). For professionals working within the CJS, interacting successfully with diverse individuals is an occupational requirement. While CJS employees are not expected to professionally diagnose, treat, or provide research-based

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interventions for individuals they interact with, they are required to have the skills necessary to effectively communicate and provide safety and protection for all individuals inclusive (Department of Justice 2010). This task can be particularly challenging when considering the common characteristics associated with ASD including deficits in communication and social interactions. Individuals with ASD may find it difficult to communicate while within the CJS, and CJS employees have the potential to misinterpret behavior of individuals with ASD because of a lack of understanding of ASD (e.g., Gardner et al. 2018). Further, due to the variability inherent within the spectrum of individuals who have an ASD diagnosis, it is not always easy for CJS professionals to quickly identify someone with ASD (King and Murphy 2014).

Although research in this area is still emerging, trends in the current literature related to ASD and the CJS emphasize a need for a more comprehensive understanding of various aspects of ASD-CJS interface and interactions. Within the literature, there have been focused efforts on identifying prevalence of individuals with ASD and the CJS, or knowledge of CJS professionals. Prevalence findings are mixed. In one study, Lunsky et al. (2015) found that 17 out of 396 individuals with ASD (4.3%) were involved with law enforcement within the past 2 months. In another study, Rava et al. (2017) stated that one in five individuals with ASD have reported being stopped or questioned by police by the time they were in their mid-twenties. In investigations focusing on knowledge of LEOs, the message is clear—more training is needed (e.g., Chown 2009; Modell and Mak 2008). In one study, Modell and Mak (2008) found that only 20% of LEOs in their study could identify defining features of ASD. Relatedly, Crane et al. (2016) reported that just under half of LEOs were satisfied with their interactions with individuals with ASD. Individuals with ASD detail a similar need for training, as less than 20% of caregivers of individuals with ASD or adults with ASD reported "satisfactory" experiences during their interaction with LEOs (Crane et al. 2016).

Beginning in the 1970s, law enforcement agencies at the national and international level began investing in initiatives, such as educational trainings and specialized responses, to improve interactions between LEOs and people with mental health concerns to ensure individuals with disabilities had access to the CJS. Currently, local and federal regulations, availability of local resources, and CJS professionals' general attitudes and beliefs influence which strategies CJS agencies implement to best support and protect individuals with disabilities, including those with ASD. Although it is possible to address some of the characteristics of ASD through generalized trainings on mental health or intellectual disability, tailored trainings should address the unique challenges associated with ASD specifically. Given the various reports of negative interactions between LEOs and persons with ASD (Copenhaver and Tewksbury 2018), formal training on how

to recognize and respond to the needs of community members with ASD is needed. To this end, researchers have also called for specialized training in the area of ASD to be developed after reviewing law enforcement training curriculum from seven states in the USA (Laan et al. 2013). Another comprehensive, systematic search of the literature identified only two studies that empirically investigated effects of law enforcement trainings related to ASD (AUTHORS 2019 for review). The current review will address gaps in the current literature by expanding the scope of to all CJS professionals who interact with individuals with ASD rather than focusing solely on LEOs.

Individuals with ASD have a fundamental human right, along with other individuals, to equitable protection by and service from the CJS, and more information is needed on the state of CJS-ASD interaction. Individuals with disabilities have a long history of being denied this right. For example, individuals with disabilities may not be viewed as credible reporters of crimes against them and criminal acts against individuals with disabilities may be viewed as abuse versus criminal activity (see Ortoleva 2010 for more examples). For individuals with disabilities, access to the legal process may also be hindered due to limited understanding of legal rights, physical barriers, lack of accessibility of legal information, and limited access to counsel with experience representing clients with disabilities (Ortoleva 2010). Because research on individuals with ASD as its own category is still emerging, little information is known related to this group's interface with the CJS. However, it is important to keep in mind the importance of this access. Ortoleva (2010) writes:

> To be fully included in society, persons with disabilities need access to justice. As long as persons with disabilities face barriers to their participation in the justice system, they will be unable to assume their full responsibilities as members of society or vindicate their rights. For this reason, it is important that barriers be removed so that persons with disabilities can enjoy the equal opportunity to perform their duties as parties, witnesses, jurors, lawyers, prosecutors, judges, arbitrators, and other participants in the administration of justice. (Ortoleva 2010, p. 286).

Therefore, this review hopes to establish clear evidence on what barriers individuals with ASD might be facing within the CJS as well as what is known about individuals with ASD and their interactions with the CJS.

Purpose of the Review

Despite the publication of several narrative reviews, a systematic, scoping review of the literature related to ASD and CJS is

warranted. Although one systematic review addressed individuals with ASD and the CJS (King and Murphy 2014), researchers only considered studies that focused on ASD and offending behavior, including prevalence of offending, types of offenses committed, as well as vulnerability and characteristics of offenders with ASD serving time in the CJS. Other related reviews have been solely descriptive in nature (Cashin and Newman 2009; Gomez de la Cuesta 2010; Mouridsen 2012), which highlights the need for a comprehensive scoping review. The purposes of this review were (a) to broadly ascertain what is known related to various aspects of interface between individuals with ASD and the CJS and (b) thematically summarize areas of investigation being conducted related to ASD and the CJS. Providing up-to-date information regarding empirical research related to ASD and the CJS is critical to inform future practice, policymaking, and research.

Method

In contrast to systematic reviews, scoping reviews broadly assess an area of literature to (a) describe the scope and nature of research and (b) identify gaps in the current body of knowledge (Arksey and O'Malley 2005; Levac et al. 2010). A scoping review of ASD and the CJS is an appropriate method to meet the objectives of the current review given that the research topic is wide-ranging and has not been reviewed comprehensively. We employed Arksey and O'Malley's (2005) methodological framework for the search and selection process, which includes the following steps: (a) identifying the initial research question(s), (b) identifying relevant studies, (c) selecting studies for inclusion, (d) charting the data, and (e) collating, summarizing, and reporting results. Prior to conducting the search, we developed a protocol specific to this scoping review as suggested by the reporting guidelines entitled the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Protocols 2015 ([PRISMA-P 2015]; Moher et al. 2015). The protocol presented an explicit plan for the review based on pre-defined eligibility criteria as well as a specific methodological and analytic approach.

Identification of Relevant Studies

In order to identify a comprehensive list of published literature relevant to various aspects of interface between individuals ASD and the CJS, we systematically searched 13 professional databases (e.g., Academic Search Complete, Criminal Justice Abstracts, Criminal Justice Database, Social Science Database) with the assistance of three reference librarians who specialized in scoping reviews, public health, education,

and criminal justice. We comprehensively searched key terms related to ASD (e.g., autis*, ASD, Asperger) and the CJS (e.g., police officer, law enforcement); keywords were identified through (a) review of search terms in relevant published articles, (b) consultation with three librarians, (c) input from three graduate-level professors who specialize in ASD, and (d) review of terminology used in professional organizations related to both the CJS and ASD. We also conducted a hand search of 28 journals related to ASD and the CJS (e.g., *Autism*; *Autism Research*; *Crime & Delinquency*; *Criminal Justice and Behavior*; *Criminal Justice Ethics*; *Criminal Justice Policy Review*; *Criminology*; *Criminology & Criminal Justice: An International Journal*). The initial search was undertaken in March 2018, and a hand search of most recent issue of journals and review of citations was conducted in Summer 2018. To identify all relevant literature, no date restrictions were placed on the search. The first author performed the search with the help of a reference librarian and managed and analyzed search results using EndNote™ (EndNote™ 2019) and Rayyan® (Ouzzani et al. 2016) software.

Study Eligibility and Selection

When formulating the questions for the review, we utilized the "PICO" method, which defines the Population, Intervention, appropriate Control or Comparator, and Outcomes of interest (Moher et al. 2015). The process of clearly describing the inclusion criteria for each of the PICO elements guided the determination of study eligibility, data extraction, analysis, and interpretation of results. Inclusion criteria are summarized in Table 1. Articles were excluded for the following reasons: (a) only descriptive information was reported (e.g., review articles); (b) the article was not peer-reviewed (e.g., dissertations, policy briefs, editorials); and (c) the articles focused on disabilities (e.g., intellectual disability, learning disabilities, mental illnesses) and did not include information about ASD. When making eligibility decisions, we considered articles that met inclusion criteria and related to all professionals working in CJS environments, but research on some CJS professionals (e.g., correctional officers, probation officers) is very limited.

The study search and selection processes are presented in Fig. 1. Two researchers screened all titles and abstracts independently to determine relevance for the review. The full-text papers of the remaining articles were then further examined, and reviewers made study inclusion decisions according to inclusion and exclusion criteria set a priori. While screening articles, any additional relevant studies that met criteria were added to the finalized list of included studies. Any disagreements were resolved by consensus and input from a third reviewer. The search and selection procedures yielded 55 articles that met inclusion criteria.

Table 1 Article inclusion criteria

Study characteristics	Description
Population or participants, and conditions of interests	Participant characteristics were not specified a priori. However, it was anticipated that participants may be LEOs and other criminal justice professionals as well as people with ASD and their family members
Intervention(s)	A specific intervention component was not required given that any empirical-based study that focuses on ASD and law enforcement/the CJS will be included
Comparisons or control groups	All studies were included irrespective of the presence or absence of comparator or control groups
Outcome(s)	No restrictions were placed a priori on the type of outcome
Study design	All relevant scholarly studies were considered, including quantitative, qualitative, or mixed-method designs
Journal type	All studies should be published in a peer-reviewed journal
Language	English-only
Date range	No date restrictions were set

Charting the Data

Adhering to the multi-staged charting process associated with scoping reviews, the first and second authors collaborated to extract theoretically and methodologically relevant characteristics from each of the 55 individual articles. Descriptive characteristics such as author(s), year of publication, country of origin, number of participants, details regarding participants, and methodology were extracted and organized. In addition, key findings from the included articles were added to descriptive information to create detailed data extraction tables.

Fig. 1 PRISMA flow diagram of the study selection process
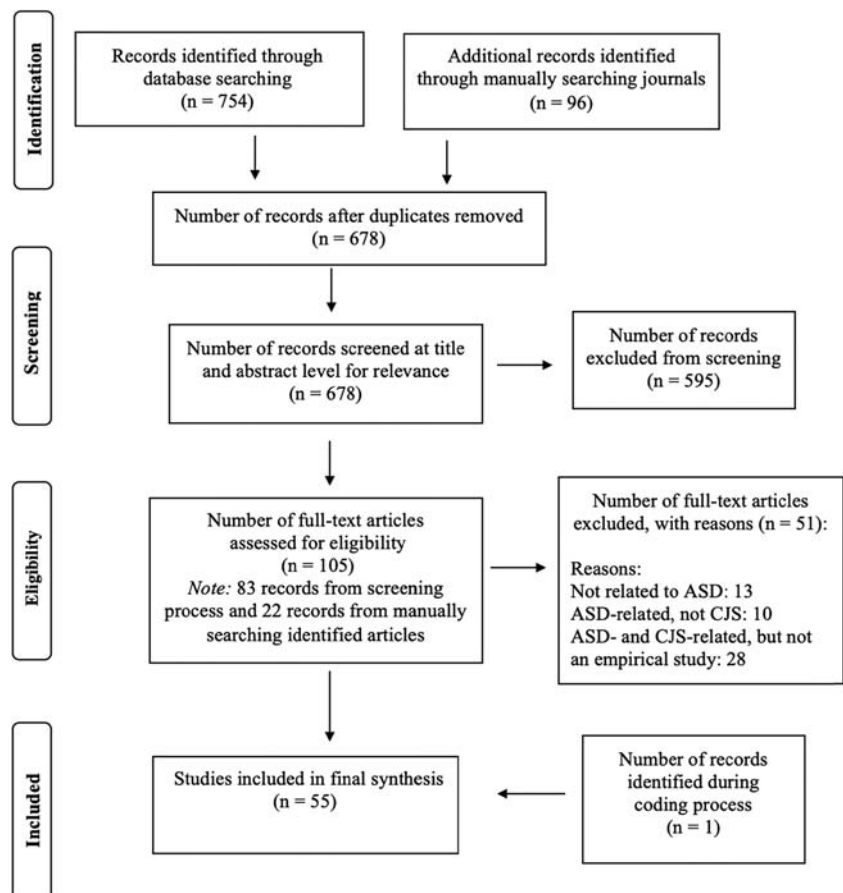
Collating, Summarizing, and Reporting Results

The study topics and findings were examined, compared, and discussed in order to identify major themes, gaps in the literature, and implications for future research, practice, and policy (Levac et al. 2010). All 55 articles were classified into one of the following five major themes: (a) Prevalence of CJS contact within the ASD community ($n = 7$) and prevalence of ASD within CJS settings ($n = 8$), (b) characteristics and profiles of people with ASD within the CJS ($n = 8$), (c) autism community experiences with and perceptions of the CJS ($n = 10$), (d) interviewing individuals with ASD within the CJS ($n = 10$), and (e) professionals' knowledge, experiences, and training related to ASD ($n = 12$). If articles could be coded into more than one category, then they were classified into one category based on the main focus of the article. A team of three researchers collaborated to categorize articles based on their "main focus." If an article focused on more than one topic and could potentially be categorized into more than one category, the group of researchers first discussed the purpose and findings of the article before reaching consensus regarding the "main focus" of the article. Then, the research team classified the article into a single theme. Due to the varied focus of the studies and variety of methodologies used, completion of a meta-analysis of the data collected was not possible. Instead, a summary of the authors, country, year, participation information, methodology, and main findings was tabulated into separate tables according to categories listed above. In addition, each of the included articles was assigned an article number based on alphabetical order of the first authors.

Results

In this section, we organize our reporting of results as follows: (a) search results, (b) reliability during the study selection process, (c) five tables presenting data from included studies according to each main theme, and (d) summary of main findings associated with each table.

Search Results

The PRISMA diagram in Fig. 1 provides a summary of the search and study selection process. Initially, 850 articles were identified while 678 remained after de-duplication. After screening at the title and abstract level for relevance and additional manual searching, the full-text articles of 105 records were assessed for eligibility. A total of 51 articles were excluded after screening the full-text. Most of the excluded articles ($n = 28$) were related to ASD and the CJS, but were excluded as they did not report empirical findings. The search resulted in 55 studies that were related to any aspect of both ASD and the CJS and/or LEOs. Of note, 25 studies were published in journals that emphasized ASD and other disabilities (i.e., developmental, learning, intellectual disabilities), 12 articles were published in CJS or forensic psychology/psychiatry journals, 4 studies were published in journals that focused on both disabilities and the CJS (e.g., *Journal of Learning Disabilities and Offending Behaviour*, *Journal of Intellectual Disabilities and Offending Behaviour*), and 14 studies were published in journals that did not specifically focus on disabilities or the CJS (e.g., *Pediatrics*, *Journal of Child Psychology and Psychiatry*, *Emergency Medicine Journal*, *Journal of Interpersonal Violence*).

Reliability During Study Selection Process

During the study selection process, two researchers independently screened articles. Inter-rater reliability was calculated as both (a) percent agreement (i.e., agreements/(agreements + disagreements) × 100) and (b) *kappa*. In the title/abstract screening phase, percent agreement was 99.56% and *kappa* was 0.98. In the full-text review phase, percent agreement was 97.14% and *kappa* was 0.94. A single study, Murphy et al. (2018), was identified while searching citations for relevant articles; two researchers reviewed the full-text article and agreed that that the study met inclusion criteria.

Main Findings

Descriptive data were tabulated for each of the main categories into five tables through discussions and collaboration between two researchers. An overview and summary of main findings associated with each theme is provided below. In the presentation of findings, primary articles are identified using study number that corresponds with citations appearing in each table.

Prevalence of CJS Contact Within the ASD Community and Prevalence of ASD Within CJS Settings Although 15 total studies focused on prevalence rates, articles were divided into categories based on whether they explored (a) prevalence of CJS contact within the ASD community (Table 2) or (b) prevalence of individuals with ASD within CJS settings (Table 3). Of the 7 studies in Table 2, three were from the UK, three were from the USA, and one was from Denmark. All studies were published within the last 15 years; however, only one study (40) was published within the last 5 years. Two studies (6, 8) utilized geographically based registries one retrospective study (19) examined Hans Asperger's clinic sample, one study (34) explored inpatient referrals from a child psychiatry clinic, and three studies utilized community samples (1, 40, 53). Five studies included comparison samples (6, 8, 19, 34, 53); however, these comparison groups were not always well-matched to the ASD-specific sample. In the five studies that utilized comparison groups (6, 8 19, 34, 53), individuals with ASD

Table 2 Prevalence of CJS contact within the ASD community (n = 7)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
1	Allen et al. (2008); UK	126	Participants included adults in South Wales with Asperger syndrome (AS) who were in contact with one or more adult community services	Mixed-Method: Researchers asked staff informants to complete questionnaires related to the history and behaviors of participants with AS who gave permission (n = 16). Some individuals with AS (n = 6) also agreed to participate in semi-structured interviews to describe their perceptions of their offending behavior and experiences in the CJS	- The prevalence rate of offending behavior was 26% (33 reported prior engagement in offending behaviors that had or could have resulted in involvement in the CJS) - All participants reported negative emotional reactions to being arrested as well as difficulties during interactions with officers, including being unable to effectively process the situation, feeling uncomfortable at the police station, and experiencing difficulty during police interviews
6	Brookman-Frazee et al. (2009); USA	42	Participants included 1603 youth enrolled in at least one of five services systems with available parent report data (66% male; 34% female) with age range from 6 to 19 years (M = 14.0). 42 participants had an ASD diagnosis	Comparative: Caregivers reported information regarding their children's needs and other related factors. Records from June 1996–1997 from each of the five service systems were reviewed to gather information on participants' involvement	- 2.6% of sample (n = 42) were diagnosed ASD and 11.1% diagnosed with ID - Fewer children with ID/ASD (11%) were involved in CJS than youth without ASD or ID (31%)
8	Cheely et al. (2012); USA	609	Participants included 609 youth (between 12 and 18 years old) identified by the South Carolina Autism and Developmental Disabilities Monitoring Project (SC ADDM).	Comparative: Two clinicians reviewed participant files to confirm diagnoses. The SC ADDM database was linked to records at the Department of Juvenile Justice and South Carolina Law Enforcement Division database or compare which individuals with ASD had contact with the CJS from the years 2000, 2002, 2004, and 2006	- Prevalence rate of contact with CJS was 5.24% (32 participants reported prior contact) - Participants with ASD reported significantly fewer charges per person (M = 3.3) than youth without ASD (M = 5.7)
19	Hippler et al. (2010); UK	177	Participants included 177 individuals who were seen by Hans Asperger or colleagues in Vienna from 1951 to 1986. There were 73 individuals in the "autistic psychopathy" (AP) group and 104 in the "features of autistic psychopathy" (AF) who did not receive autism diagnoses.	Comparative: Researchers reviewed patient files before searching Austrian Penal Register in 2002 to identify any registered convictions in the sample of 177 former patients and general population. Criminal records survey occurred on average 33 years post-diagnosis.	- Records survey noted that 8 of the participants in the AP or AF sample had a total of 33 convictions. Prevalence rate of offending was 2.74% - Prevalence rate of offending among individuals with ASD did not differ from general population - Most common convictions were (a) property offenses (81%), falsification of documents (18%), and more serious offenses (9%)
34	Mouridsen et al. (2008); Denmark	313	Participants included 313 adults who were previously seen as child patients at an inpatient Child Psychiatry clinic in Copenhagen and Aarhus from 1960 to 1984	Comparative: After file review to confirm diagnosis, participant information was screened through the national Danish Criminal Register to identify former arrests and convictions	- Childhood autism group (n = 113): 0.9% of group had criminal record compared with 18.9% of control group (n = 339) - Atypical autism group (n = 86): 8.1% of group had criminal record compared with 14.7% in control group (n = 252) - AS group (n = 114): 18.4% of group had criminal records compared with 19.6% in control group (n = 342)
40	Rava et al. (2017); USA	920	Participants included 920 youth with ASD from the National Longitudinal Transition Study-2 dataset	Descriptive: Researchers analyzed survey data (parent and self-report) from two questions to determine the prevalence of youth being (a) stopped or questioned by police	- By age 21–22, approximately 20% of youth with ASD reported being stopped and questioned by police while 4.7% report being previously arrested. By age 14–15, 8.2% of

Table 2 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
				(outside of traffic violation) and (b) arrested. Participants completed surveys related to factors influencing their involvement in the CJS	youth with ASD are stopped/questioned while < 1% of youth were previously arrest - Males and youth exhibiting externalizing behaviors were more likely to be questioned, stopped, or arrested than females and those who did not engage in externalizing behavior
53	Woodbury-Smith et al. (2006); UK	25	Participants included 25 adults with ASDs living in the same "Health District." The comparison included 20 adult volunteers without ASD	Comparative: Participants used the Self-Reported Offending Questionnaire to report previous law-breaking behavior. The Home Office Offenders' Index database was utilized to identify official reports of participants' prior convictions (only included data on serious offenses)	- 48% of the ASD group (n = 12) self-reported prior convictions compared with 80% (n = 16) of the non-ASD group - Only 8% of individuals in the ASD group were listed on the Offenders' Index

reported the same or lower rates of contact with the CJS than individuals without ASD. One study (40) found that approximately 20% of youth with ASD reported being stopped and questioned by police while another study (1) that solely investigated history of offending behavior reported a 26% prevalence rate of offending behavior in a sample of individuals with Asperger syndrome.

Of the eight studies in Table 3, three studies were conducted in Sweden, two were from the UK, one from the USA, one from the Netherlands, and one from Japan. The most recently published studies were from 2012 (14, 15, 42); however, the rest of the studies were published between 1994 and 2009. Many of the studies (12, 44, 45, 46) included a sample of individuals within the CJS who were referred for forensic psychiatric evaluation; however, two studies (14, 42) reported ASD diagnoses that researchers made using a variety of assessment methods (e.g., the Autism Quotient (AQ), caregiver neurodevelopmental history, personality assessment, direct observations) in a sample of individuals currently serving time in prison. Further, two studies (15, 22) examined prevalence of ASD in samples of juveniles who were either arrested and/or tried for a variety of crimes. Across all studies, prevalence of CJS involvement for individuals with ASD ranged widely (i.e., 0.9–48%); however, data collection methods and sample populations varied greatly. Similarly, prevalence estimates of ASD within CJS settings spanned a large range (i.e., 0–27%). It is difficult to make direct comparisons of prevalence rates across studies due to differences in methodology used, type of sample, lack of consistent measures, and variety of terminologies utilized to describe ASD (e.g., autism, "autistic features," Asperger's syndrome).

Characteristics and Profiles of People with ASD Within the CJS

The eight studies that highlighted characteristics and profiles of individuals with ASD within the CJS are summarized in Table 4. Studies in this category were conducted in a variety of countries. Specifically, two of the studies were from Sweden, two were from the UK, and the other studies were from Canada, the USA, Norway, and Japan. All studies were published within the last 15 years; however, only two studies were more recently published in the last 5 years (16, 48). Half of the studies (20, 24, 52, 54) included comparison groups while the other studies were descriptive in nature. As a whole, the included studies utilized a variety of methodologies and presented a wide range of results; thus, main findings across studies are summarized below.

Included studies reported varied age ranges when individuals committed criminal offenses. One study (20) found that the most common age for onset of criminal behavior among "individuals with high-functioning ASD" was 6 years old, and findings from another study (52) suggest that individuals with ASD who were found guilty of homicide or manslaughter were likely to be younger than other participants who did not have ASD. In contrast to these results, findings from one study (24) noted that individuals with ASD who commit crimes were more likely to be older in age. Two studies (16, 38) highlighted the fact that the majority of included participants received ASD diagnoses in adulthood (16, 38), and several studies (20, 48, 52) reported the fact that individuals with ASD involved with the CJS were more likely to experience childhood adversities including abuse and maltreatment. Findings from three studies (16, 24, 48) suggest that individuals with ASD within the CJS experience high rates of co-

Table 3 Prevalence of ASD within CJS settings (*n* = 8)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
12	Enayati et al. ([2008](#)); Sweden	2609	Participants included all convicted offenders (*n* = 2609) referred for inpatient forensic psychiatric examination in Sweden between 1997 and 2001. Out of this group, 214 individuals had committed arson (155 men; 59 women)	Descriptive: Each individual participated in a multidisciplinary team-based assessment, including mental state examinations, psychological and personality assessments, overview of life history, and direct observations. Researchers extracted information in order to determine if participants met criteria for DSM-IV Axis I or II diagnoses	Prevalence of ASD in male participants: - Met criteria for autism: 1.3% (male arsonists); 0.3% (other male offenders) - Met criteria for Asperger syndrome: 7.1% (male arsonists); 2.5% (other male offenders) Prevalence of ASD in female participants: - Met criteria for autism: 0% (female arsonists); 1.0% (other female offenders) - Met criteria for Asperger syndrome: 3.4% (female arsonists); 2.6% (other female offenders)
14	Fazio et al. ([2012](#)); USA	431	Participants included 431 male inmates in a maximum security state prison in the Midwest ranging in age from 19 to 74 years (*M* = 38)	Descriptive: Participants self-reported autism-specific characteristics using the Adult Autism-Spectrum Quotient (AQ), and researchers utilized the cutoff score to make ASD diagnoses according to the DSM-IV-TR	- Using cutoff score of 32, 19 individuals (4.4%) of the sample met criteria for ASD, but lack of developmental and medical history prevented definitive diagnoses
15	Geluk et al. ([2012](#)); Netherlands	308	Participants included 308 children arrested by police before age of 12 from 2003 to 2005. Childhood arrestees were also compared with group of children from general population (*n* = 3031)	Descriptive: For 2 years following their arrest, children and their families participated in three separate assessments where they reported autistic symptoms, delinquent behavior, and externalizing disorders	- At every follow-up, levels of ASD-specific symptoms in childhood arrestees were in between those found in a sample of individuals with ASD and in the general population - Adjusting for co-occurring externalizing disorders, ASD-specific symptoms were significantly positively associated with future delinquent behavior in childhood arrestees
22	Kumagami and Matsuura ([2009](#)); Japan	428	Participants included all juveniles tried for varied crimes, excluding traffic violations and car accidents, in four family courts in Japan during a 1-year period.	Descriptive: Participants participated in semi-structured interviews and completed an adverse childhood experience questionnaire. A child psychiatrist utilized this data, along with review of school and court records, to determine if participants meet DSM-IV criteria for ASD	- In three courts, 11 participants (3.2%) were diagnosed with pervasive developmental disorder (PDD). The prevalence rate of PDD was 18.2% (*n* = 17) in the fourth court, which specialized in "unique" crimes such as arson and sex-related offenses
42	Robinson et al. ([2012](#)); UK	2, 4-5-8	Participants included prisoners (*n* = 2, 458) from 12 public prisons in Scotland	Descriptive: Researchers screened all prisoners before inviting participants with high scores (and matched controls) to participate in further assessment. Next, participants (*n* = 126) completed the Autism Quotient (AQ) and a social cognition measure while some caregivers (*n* = 44) noted neurodevelopmental history	- 4% of prisoners scored above cutoff on first screening. - Of 126 who completed AQ, 7 (5.65%) scored above cutoff. However, no participant reached the diagnostic cutoff score for the caregiver interviews on neurodevelopmental history
44	Scragg and Shah ([1994](#)); UK	392	Participants included 392 male patients at a high secure psychiatric hospital, where the majority of admissions into the hospital are due to criminal behavior. Only 17 patients moved past stage one	Descriptive: In stage one, patients' files were screened to denote ASD symptoms. Then, if 3 or more symptoms were identified, then key nurses described patients' ASD behaviors during semi-structured interviews. Patients also completed interviews	- Prevalence rate of AS is 2.3% in the sample - 3 of the remaining 11 prisoners almost met criteria for AS, but diagnoses were not confirmed due to lack of information
45		126			

Table 3 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
	Siponmaa et al. (2001). Sweden		Participants included 126 patients (15 to 22 years old) who were evaluated at the Forensic Psychiatric Department after committing serious, predominantly violent, offenses from 1990 to 1995	Descriptive: To obtain information, patients participated in interviews and assessments while relatives also provided information via interviews. Data was compiled retrospectively in order for a child neuropsychiatry specialist to make diagnoses based on DSM-IV criteria	- 27% ($n = 34$) were diagnosed with PDD - 17% ($n = 21$) were diagnosed with PDD-not otherwise specified - 10% ($n = 13$) were diagnosed with AS - AS and PDD NOS diagnoses were more frequent in arson group than other crime groups
46	Soderstrom et al. (2004); Sweden	100	Participants included 100 individuals (92 men; 8 women) who committed serious or sexual crimes, which led to referral for forensic psychiatric evaluations from October 1998 to February 2001	Descriptive: Files were reviewed and participants participated in interviews and completed autism-specific assessments. Then, a psychiatrist determined if participants met DSM-IV criteria for "autistic disorder," "AS," or "ASD – not otherwise specified" (ASD – NOS). In some cases, relatives were also interviewed	- 5% of the sample ($n = 5$) was diagnosed with autistic disorder - 3% ($n = 3$) was diagnosed with AS - 10% ($n = 10$) was diagnosed with ASD – NOS

morbid psychiatric diagnoses. Specifically, the studies generally identified the presence of the following co-morbid disorders in ASD populations: intellectual disabilities, drug-related disorder, personality disorders, attention deficit hyperactivity disorder (ADHD), psychoses, affective disorders, phobia, somatoform disorders, behavior disturbances, depressive disorders, and obsessive-compulsive disorder (OCD). In addition, two studies (16, 54) highlight individuals' social-communication deficits (e.g., deficits in emotion recognition, higher rates of social isolation). As a whole, the variety of types of offenses across studies included theft, sexual misconduct, violence/assault, and homicide.

Autism Community Experiences with and Perceptions of the CJS The ten studies that focused on the ASD community's experiences with and perceptions of the CJS are presented in Table 5. Four studies were conducted in the USA, three were from the UK, two were from Canada, and one was from Norway. All ten studies were published within the last 12 years, and six of the studies were published in the last 5 years. Most studies were descriptive (13, 26, 39, 50, 51) and/or qualitative (11, 17, 47) in nature. In addition, two studies (2, 35) employed the use of comparison groups when conducting analyses. Two studies solely focused on the perspectives of adults with ASD (17, 39), three included only caregiver input (2, 11, 26), and three studies included the perspectives of both caregivers and adults with ASD (47, 50, 51). In addition, one study employed a review of archived data (35).

Included studies associated with this theme covered a wide range of topics; however, main findings are summarized below. The majority of articles (2, 13, 17, 26, 47, 50, 51) highlighted the frequency and type of interactions that individuals with ASD have with the CJS. One study (13) found that 20% of adults with ASD reported a total of 35 interactions with LEOs throughout their lifetime while findings from other studies (26, 50) noted that 4.3% and 16% of the sample had interacted with LEOs in the past year. Another study (51) found that 7.9% of children with ASD had experienced at least one encounter with LEOs. Across studies, reasons for interactions were related to social/behavioral misunderstandings, assault/violence, verbal/physical aggression, arson, murder, and sexual offenses. Two studies (2, 47) focused on law enforcement involvement in response to calls related to elopement.

Many of the studies (11, 17, 35, 39, 50) focused on satisfaction with interactions and experiences within the CJS as a whole. Although some studies (17, 50) described participants' satisfaction with interactions, several studies highlighted difficulties that individuals with ASD experienced, including (a) breakdowns in communication between LEOs and children with ASD, (b) unprofessional behavior from LEOs, (c) lack of knowledge regarding disabilities, (d) lack of active listening from LEOs, (e) stressful experiences during trials, and (f) defense lawyers not representing their cases well. Studies investigating experiences that individuals with ASD have in prison settings highlight mixed results. Specifically, one study (17) noted that all participants who were in prison "coped well" and preferred the structure and routine that prison provided. In

Table 4 Characteristics and profiles of people with ASD within the CJS ($n = 8$)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
16	Helverschou et al. (2015); Norway	48	Records from National Board of Forensic Medicine in Norway were searched from 2000 to 2010 to identify all records involving adults with ASD. Records from 48 adults (41 men; 7 women; M age = 28.3 years) were identified as having ASD according to ICD-10 criteria	Descriptive: Researchers reviewed all forensic reports and rated whether following information was collected for each case: demographic info; support networks; diagnostic information; and forensic information (coded as dichotomous yes or no). In addition, three researchers reviewed cases and provided subjective ratings related to individuals' motives and explanation for criminal acts as well as to determine whether crimes were deliberately planned or accidental	- 29% of individuals had been in foster or institutional care as children and about two-thirds had "no education" or "basic school leaving qualifications" - Only 27% reported regular employment and most had limited social networks outside of their immediate family - 54% ($n = 26$) were diagnosed with ASD by mental health services; 14 received diagnosis as an adult and 12 people received childhood diagnosis. Mean age of ASD diagnosis in sample was 25.3 years - 46% ($n = 22$) received ASD diagnosis during their assessment by psychiatric forensic specialists. Results suggested that only 4 participant files included all necessary pieces of information to make ASD diagnosis - 83% ($n = 40$) of participants also had other co-morbid psychiatric diagnoses and 33% ($n = 16$) were diagnosed with intellectual disability - 3,382 people overall were identified in database as having committed crime that brought them into contact with agency, of which 48 had ASD (1.4% prevalence rate)
20	Kawakami et al. (2012); Japan	175	Participants included 175 individuals (147 males; 28 females) diagnosed with high-functioning ASD according to DSM-IV. This group was divided into two sub-groups: those with criminal activity (CA group; $n = 36$) and those with no criminal activity in the control group (no CA group; $n = 139$)	Comparative: Data collection involved first reviewing participants' records, and then interviewing participants and their parents to obtain any information missing from records (if needed). Information on childhood adversity and criminal behavior was also collected	- Most common criminal act reported: theft (55.6%), sexual misconduct (25%), violence (25%), and running away (19.4%) - The onset of criminal behavior ranged from 5 to 21 years old with mean age of 11.42 years - Most common age of onset of criminal behavior was 6 years old (20% of CA group) - More participants in CA group experienced childhood adversities compared with control - 94.4% of participants in CA group engaged in multiple offenses
24	Långström et al. (2009); Sweden	422	To identify records of individuals with ASD, a medical registry of all people discharged from hospitals in Sweden between 1/1/1988 and 12/31/2000. Analysis identified 1089 individuals with ASD, but final sample excluded those under the age of 15. Thus, the final sample included 422 individuals with ASD (301 males; 121 females diagnosed with autism ($n = 317$) or Asperger syndrome ($n = 105$) according to ICD-9 with a M age of 18.36 years	Comparative: During the analysis, researchers cross-referenced data from discharge register (with ASD diagnosis information) with the National Crime Register for individuals who committed violent crimes between 1998 and 2000	- Individuals with ASD who committed violent crimes were more likely to be older and male as well as to display higher levels of comorbid psychopathology - Individuals convicted of a violent crime were more likely to be diagnosed with psychotic disorder, any substance use disorder, and personality disorder - Only 3.2% ($n = 10$) individuals in autism group compared with 20% ($n = 21$) in the Asperger group had

Table 4 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
					been convicted of at least one violent crime
38	Palucka et al. (2012); Canada	4	Sample included retrospective analysis of patient records from an inpatient psychiatric unit for adults with intellectual disability. Participants were included if they were awaiting trial, were on probation or bail, were undergoing an assessment for fitness to stand trial/criminal responsibility, or had been found to be unfit for trial/criminal responsibility and was in the hospital. An identified sample included a total of 20 participants; 4 whom were diagnosed with ASD (3 males; 1 female)	Descriptive: Records of patients who were discharged between 2003 and 2011 were reviewed to examine the circumstances surrounding participants' involvement in the CJS. Researchers summarized descriptive information about the sample as well as specifically focused on attributes associated with the group with ASD	- 3 out of 4 individuals with ASD were diagnosed with less severe form of ASD (PDD-NOS/atypical autism) and did not engage in stereotypical or self-stimulatory behaviors - 3 of the participants received an ASD diagnosis in adulthood, and all individuals were classified as having mild ID - 3 individuals were raised in supportive family homes, and only one person was raised in foster care as well as in an impoverished setting - The main offense reported was assault, which was often triggered by frustrations or denial of access to object related to person's interest - 3 people were deemed unfit to stand trial, and one person was sentenced
48	Stinson and Robbins (2014); USA	34	The larger sample included participants with ID, DD, and "cognitive abilities" currently residing in a secure forensic psychiatric hospital in the USA. Of the sample, 35 were diagnosed as having a "pervasive developmental disorder" according to DSM-IV-R. The average age was 31.9 years old	Descriptive: During a 6-month period, the records of clients in a forensic hospital setting were reviewed to identify clients with particular disabilities, including those with PDDs. Results describe participants in the sample, including the information presented in their evaluation reports as well as their criminal and educational histories	- PDD sub-group was placed in residential care at a significantly younger age than other groups - 80% of the sample had reportedly experienced abuse and/or maltreatment in their past; this was significantly higher than other sub-groups - 28.6% of clients were diagnosed with co-morbid psychiatric diagnoses - Individuals with ASD were less likely to abuse alcohol, meet criteria for a substance use disorder, and be arrested for alcohol- and drug-related offenses
52	Wahlund and Kristiansson (2006); Sweden	8	35 total participants were identified as males found guilty of homicide or manslaughter in the country between 1996 and 2001 and also had a main diagnosis of antisocial personality disorder (APD) or ASD/Asperger's syndrome (AUT) according to the DSM-IV. 8 participants were classified in the AUT group	Comparative: Participants were classified into 3 groups: (a) AUT, (b) APD (impulsive), (c) APD (controlled). Analysis compared relationship between individuals' personality traits, psychosocial functioning over the lifespan, and criminal behavior across groups. Researchers conducted review of records to examine participants' backgrounds	- 10 homicides were reported in AUT group - On average, AUT participants were significantly younger than other groups, and 25% of cases reported history of physical abuse - Results indicated people with AUT typically used methods other than guns and knives during homicidal acts compared with other groups - It was less common for individuals from the AUT group to be intoxicated when performing criminal acts than other groups
54	Woodbury-Smith et al. (2005); UK	44	Three groups of participants were included: (a) ASD offenders ($n = 21$; 18 men and 3 women; M age = 35.4 years) receiving services; (b) ASD non-offenders ($n = 23$; 20 men and 3 women; M age = 29.7 years) identified from local health district; and (c) volunteers identified from the general population ($n = 23$; 17 men and 6 women; M age = 38.2 years) with no prior criminal history based on	Comparative: All participants completed a variety of assessments, including tests of intelligence, theory of mind, executive function, and emotion recognition. Researchers examined whether cognitive impairments of people with ASD were correlated with vulnerability to engage in offending behavior. Analysis compared differences in groups based on established	- No significant differences in theory of mind or executive function between offenders and non-offenders with ASD -Offenders with ASD showed significantly greater impairments in recognizing the emotion of fear than the other groups, including non-offenders with ASD

Table 4 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
			self-report. All individuals with ASD were diagnosed based on ICD-10 criteria	measures listed above, which are known to be affected in people with ASD and offenders	
55	Woodbury-Smith et al. (2010); UK	44	Two groups of participants were included: (a) ASD offenders (n = 21; 18 men and 3 women; M age = 35.4 years) receiving services and (b) ASD non-offenders (n = 23; 20 men and 3 women; M age = 29.7 years) identified from local health district. All individuals were diagnosed with ASD based on ICD-10 criteria	Qualitative: Interviews were conducted with both groups of participants to describe: (a) their current circumscribed interests, (b) changes in their interests over time, and (c) the amount of time and level of intensity engaged in their interests throughout their lifespan. Finally, researchers categorized reported interests as either violent or non-violent	- 19% (n = 4) of ASD offenders reported violent interests while none of the non-offending group reported violent interests - Only one participants' interest, fire setting, related to his offense; all other ASD offenders' interests did not relate to their crimes

*Study does not clearly describe how many people with ASD were included in the sample

contrast, results from two studies (35, 39) suggest that individuals with ASD in prison often experienced higher rates of seclusion and social isolation as well as more incompatibilities with others compared with non-ASD groups.

Interviewing Individuals with ASD Within the CJS Ten of the included studies centered around interviews with individuals with ASD within CJS settings (see Table 6). Nine of the studies were from the UK while one was conducted in Sweden. Of note, half of the articles were published by either Maras or Mattison as the lead researchers, which suggests the need for more independent work examining this topic to improve generalizability of findings across countries and cultures. Eight of the studies were published within the last decade while five were more recently published within the last 5 years; two studies were published over 10 years ago. Half of the studies (7, 18, 30, 31, 32) included participants who were children with ASD while four of the studies (27, 28, 29, 36) focused on adults with ASD. The participants' age range was not reported in one article (3). The majority of studies (18, 28, 27, 29, 30, 31, 32, 36) utilized comparative experimental designs while other studies employed qualitative (3) and mixed-method designs (7).

Main findings across studies are highlighted below. Several studies (18, 29, 30, 31) analyzed and compared the effectiveness of a variety of interview techniques, including (a) Verbal Labels (VL), (b) Sketch Reinstatement of Context (Sketch-RC), (c) Mental Reinstatement of Context (MCR), (d) Registered Performance (RP), (e) Best Practice Interview (BP), (f) Self-Administered Interview (SAI), and (g) Structured Recall (SR). One study (29) found that individuals with ASD did not differ in immediate detail recall when using

the SAI or SR interview booklets; however, participants with ASD recalled more details 1 week after viewing a scene when they completed the SR compared with the SAI booklet. Results from two studies (30, 31) suggest that children with ASD provide more accurate recall when the Sketch-RC protocol was utilized compared with the MCR and control group conditions.

Two comparative studies (27, 37) found no difference in suggestibility based on the Gudjonsson Suggestibility Scale-2 (GSS-2), and only one of the studies (37) found that adults with ASD scored significantly higher on a measure of compliance (i.e., Gudjonsson Compliance Scale) than typically developing peers. In one study (32) that utilized a misleading question interview protocol, children with ASD were no more suggestible than peers. Results from two studies (27, 37) found that individuals with ASD had significantly higher scores on measures of paranoia and anxiety compared with comparison groups. Of note, one study (28) found individuals with ASD recalled significantly more details and were more accurate when interviewed in the same room where they viewed stimuli to-be-memorized, which suggests that participants' recall is aided by context when in the presence of physical cues.

Professionals' Knowledge, Experiences, and Training Related to ASD Twelve of the included studies that focused on CJS professionals' knowledge, experiences, and/or training related to ASD are summarized in Table 7. Most studies (n = 7) were conducted in the USA, while four were from the UK and one was from Ireland. Eleven of the studies were published within the last 10 years, and eight were published more recently in the last 5 years. Only one study was published more than

Table 5 Autism community experiences with and perceptions of the CJS ($n = 10$)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
2	Anderson et al. (2012); USA	1218	Participants included 1218 children with ASD and 1076 siblings without ASD. Data were obtained from the Interactive Autism Network, which is an online research database and ASD registry. The Social Communication Questionnaire was used to confirm ASD diagnoses based on parent-report	Comparative: Parents completed an online questionnaire to report elopement frequency, associated characteristics, and consequences of elopement for children with ASD and without ASD. Parents also confirmed their children's ASD diagnoses and answered sociodemographic questions	- 49% of children with ASD and 13% of siblings without ASD reportedly eloped at least once after age 4. 53% of children who eloped were missing long enough for caregiver concern - Children were most likely to elope from homes (74%), stores (40%), and schools (29%) - Children with ASD were more likely to elope due to enjoyment from running/exploring or attempting to reach place of interest (compared with non-ASD siblings) - The following people/agencies were involved in locating children: (a) neighbors (57%), (b) police (35%), (c) school professionals (30%), and (d) store personnel (26%)
11	Edworthy and Hylton (2010); UK	6	Participants included parents of 13 "brain-injured children" who had been detained by police. Six of the 13 children were diagnosed with one of the following based on parent-report: "Asperger's syndrome," "autism," and "Autistic spectrum disorder." Eight police forces were chosen based on parents' geographical location. Each force identified one person to be interviewed ranging from diversity trainers to senior officers	Qualitative: Interpretive phenomenological analysis (IPA) was used to analyze interviews with parents. Researchers explored the experiences of "brain-injured children" who were taken into police custody. Researchers also interviewed police officers regarding parents' reports and their knowledge of rules/regulations related to "brain-injured children"	Parents identified three areas that were particularly stressful: - Communication between the police and child and/or parents: Parents reported breakdowns in communication between officers and their children as well as unprofessional behavior from some officers (e.g., lack of empathy, intimidation, unnecessary force) - Police interviews with the child: Over 70% of parents reported feeling officers were not aware of their children's low attention span and poor short-term memories. Parents reported some officers became impatient or lacked empathy during interviews - Police awareness of brain-related disabilities: The majority of parents reported that the police dealt with the arrest/detention of their children unprofessionally and with an apparent lack of knowledge and training in the areas of mental health and disability Researchers reported that officers were eager to listen to parents' reports and learn from previous experiences. Officers were aware of the rules and regulations related to interacting with and serving brain-injured children in an appropriate manner
13	Farley et al. (2018); USA	169	Study included archived data from an epidemiological survey from 1984 to 1988. Researchers attempted to contact 305 participants given that they met DSM-III and DSM-IV criteria for ASD. In total, data were collected for 169 participants (mean age = 35.5 years.; 3:1 male:female ratio)	Descriptive: Researchers collected data via direct assessment and informant report. The following social outcomes were assessed: (a) independent living, (b) social functioning, (c) autism symptoms, and (d) adult cognitive abilities. For this study, questions regarding experiences with law enforcement were included in the "Independent Living" measure	- 31 participants (20%) reported a total of 35 interactions with law enforcement - The encounters occurred during the following times: (a) childhood ($n = 8$), (b) adolescence ($n = 3$), and (c) adulthood ($n = 24$) - Participants reported the following types of encounters: (a) clear social or behavioral misunderstandings ($n = 11$), (b) disrobing in public ($n = 1$), (c) assault ($n = 9$), (d) property damage ($n = 3$), (e) making threats ($n = 2$), (f) moving vehicle violations ($n = 4$), (g) shoplifting ($n = 2$), and (h) aggression ($n = 2$)

Table 5 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
17	Helverschou et al. (2018); Norway	9	Participants included 8 men and one woman (average age = 34 years) diagnosed with ASD based on ICD-10 criteria. Four individuals had been diagnosed prior to their offense, four received diagnoses during forensic examination, and one received a diagnosis in prison	Qualitative: Participants were asked to describe the following during the interview: (a) circumstance surrounding criminal acts; (b) views of the arrest, interrogation, and trial/defense; (c) their experiences in prison and/or life after the offense. The realistic framework approach was used to analyze participants' responses	-The participants committed the following offenses: arson ($n = 3$), violence ($n = 3$), murder ($n = 2$), sexual offenses ($n = 2$), fraud ($n = 1$), and driving while intoxicated ($n = 1$) - 6 participants reported positive experiences with officers during the arrest while 3 other participants described negative experiences (e.g., officers did not listen, participant fought officers after panicking) - 5 participants described trial process as stressful and difficult while 4 people felt it was conducted in acceptable manner. None of the participants reported that they felt their defense lawyer fully represented their case well - All 6 participants who were in or had been in prison stated they "coped well;" 4 people specifically highlighted their preference for structure and routine prison provided
26	Lunsky et al. (2015); Canada	396	Participants included 396 caregivers of adolescents and adults with ASD (mean age = 18.3 years) recruited through advocacy agencies and support groups in Ontario, Canada. ASD diagnoses were confirmed through caregiver completion of the Social Communication Questionnaire	Descriptive: Parents were asked to describe the following via survey: (a) children's use of emergency services and (b) information regarding predisposing, enabling, and clinical need predictive factors. If police involvement was reported, parents described the nature of the interaction, including any restraints used or charges made against the person with ASD. Specifically, 8 out of the 17 caregivers reporting police involvement described specific information about those instances	- 13% of children with ASD used at least one emergency service in a 2-month period - 17 children with ASD (4.3%) had interacted with police in the year prior to survey completion - Caregivers reported the following details regarding the nature of interactions: (a) police briefly assessed situation and left ($n = 3$), (b) police took individual to ED then back home ($n = 1$), (c) individuals were temporarily removed from situation or briefly taken into custody ($n = 2$), and (d) individual was restrained and charges were made ($n = 1$)
35	Murphy et al. (2017); UK	198	Participants included 198 patients residing in a high-secure hospital who had established ASD diagnoses. Patients were detained under the Mental Health Act of 1983, which required them to be detained for range of 2 to 15 years (mean lengths of detainment = 4.8 years)	Comparative: Researchers reviewed archived hospital data to compare seclusion experiences and incompatibilities with other patients for both the ASD group and the general population in the hospital without ASD	- 87.5% of the ASD group, compared with 50.5% for the non-ASD group, experienced incompatibilities with other patients - Patients with ASD experienced higher number of and more hours in both short-term and long-term seclusion compared with non-ASD group
39	Paterson (2007); UK	2	Participants included two prisoners who met criteria for Asperger's syndrome based on review of medical records	Case study: Researchers reviewed patient records, observed the patient, and interviewed both the patient and support staff to obtain information for the two case studies	Participant A ("Paul"): Paul reportedly adhered to strict routine in prison and became aggressive if routines were not followed. Despite Paul's claim that he has friends in prison, observation revealed these friendships to be superficial. He reportedly lacked empathy for others and remorse for his crime Participant B ("Michael"): Michael found it difficult to comprehend abstract language and navigate social interactions in prison. He was also diagnosed with co-morbid depression, engaged in self-harm, and experienced child abuse when he was young. He was in prison for a sex offense, and he

Table 5 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
					reportedly became increasingly socially isolated in prison
47	Solomon and Lawlor (2013); USA	25	Participants included both children with ASD and caregivers. Children with autism ($n = 25$) were 8 years old or younger at time of enrollment in the study. All children had ASD diagnoses documented by medical professionals. Caregivers included 22 mothers and 15 fathers/stepfathers as well as 17 extended family members	Qualitative: Research involved ethnographic process which relied on the following modes of data collection: (a) interviews, (b) social network interviews, (c) observations, (d) field notes, and (e) record review. The obtained information was analyzed using thematic and narrative analysis approaches to find patterns within and across cases	Results discuss wandering instances in detail as well as wandering experiences over time. At least one participant noted her 6-year-old with autism was found by several police officers after eloping from a discount store, which led the mother to explain autism and the situation to the officers
50	Tint et al. (2017); Canada	284	Participants included caregivers of adolescents (over age 11) and adults with ASD (Mdn age = 17 years). ASD diagnoses were confirmed with the Social Communication Questionnaire	Descriptive: Caregivers completed online surveys as part of a larger study on service use among individuals with ASD in Canada. Relevant to the current study, caregivers reported children's involvement with the police at baseline and during 2-month period before follow-up. Participants were then divided into 2 groups: (a) those with at least one police encounter over the past year (16%; $n = 46$) and (b) those who did not have a police interaction (84%; $n = 238$). Participants who reported at least one encounter also described the nature of the police interaction, including presenting concerns, officers' response, and perspectives on officers' responses	- Of the 41 participants who rated satisfaction of police interactions, 63% of caregivers reported being satisfied to very satisfied - 47% ($n = 11$) of individuals reporting prior police interactions were involved in multiple encounters with officers in the past year - Physical and verbal aggression directed at community members (32%) and others in the home (28%) were the most frequently reported presenting concerns - Caregivers reported the following details regarding the nature of interactions: (a) police assessed and left without action (45%), (b) police escorted person to ED (30%), (c) police engaged in "other dispositions" (19%), (d) police use physical restraint (19%), and (e) criminal charges were filed (6%) - Caregivers reported that police had the following effects on the situations: (a) calming effect (49%), (b) increased individuals' level of agitation (32%), and (c) no effect (17%)
51	Turcotte et al. (2018); USA	2525	Participants were recruited from Pennsylvania Autism Needs Assessment. Participants included caregivers of elementary, middle, and high school students who met ICD-9 criteria for ASD. In addition, 141 adults with ASD completed self-report surveys	Descriptive: Participants completed surveys to report their children's school discipline and hospitalization experiences as well as their contact with law enforcement. If participants reported police contact, they were asked to describe the reason for contact and officers' responses	- 7.9% ($n = 199$) of caregivers reported their children had at least one encounter with the police. More children with Asperger's syndrome (11.9%) had contact with police compared with those with autistic disorder (6.2%) or PDD-NOS (6.8%) -Children with both ASD and ID were less likely to interact with officers than those without ID/ASD

10 years ago. The methodology of the twelve studies varied and including the following designs: (a) descriptive (21, 25, 41, 43), (b) qualitative (4, 5, 23), (c) mixed-method (9, 10, 33), and (d) experimental (36, 49). As a whole, studies included a variety of CJS professionals such as judges, police officers, firefighters, emergency medical technicians, CJS professionals working in cybercrime and fraud units, detectives, and forensic mental health professionals working in the CJS.

Included studies associated with this theme cover a wide range of topics; however, main findings are summarized below. Regarding knowledge of ASD, the two studies that included judges found that many judges believed offenders with high-functioning ASD (hfASD) were predisposed to offend, view the world differently due to their diagnoses, and often lack impulse control. Further, judges shared that media coverage of offending and hfASD was frequently negative, misrepresentative, and potentially damaging to the ASD community. All judges in the two studies had personal or professional contact with individuals with ASD. In another study (41), 94% of LEOs handling disability hate crime incidents

Table 6 Interviewing individuals with ASD within the CJS ($n = 10$)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
3	Antaki et al. (2015); England	19*	Analysis included archived interviews involving interviewees with "learning disability" or "intellectual disability" who reported sexual abuse to a police department in England (from 2010 to 2013). In the sample, at least one interviewee was described as diagnosed with "autism"	Qualitative: Conversation analysis (CA) to analyze interviews in order to understand the treatment of people with ID who reported sexual abuse to the police department	The following main themes were identified: - Interviewees' successful rebuttal of implications: Some participants were able to refute damaging implications in police questions - Interviewees' failure to rebut implications of fault in questions: Participants displayed difficulty answering questions about details, general sexual history, behavior leading up to assault, and resistance during the assault
7	Cederborg et al. (2009); Sweden	11	Study explored forensic interviews with 33 children and youth with "intellectual disability"—some of whom were diagnosed with ASD (4 with ASD-only; 8 with both ASD and DD diagnoses). Diagnoses were not confirmed nor systematically recorded—they depended on CJS professionals' memories. Interviews were archived criminal cases in Sweden involving witnesses	Mixed-method: Quantitative analysis: number of focused prompts, including option-posing utterances (OPU) (i.e., focused witness' attention on details of alleged incident not previously mentioned) and suggestive utterances (SU) (i.e., interviewer communicated what response was expected or made assumptions regarding witness' responses). Qualitative analysis: explored quality of repeated OPUs and SUs as well as witness' responses to interviewers' prompts	- 6% of the questions were repeated at least one time - Interviewees changed answers 40% of time the first time questions were repeated - Witnesses more likely to change responses the more times questions were repeated
18	Henry et al. (2017); England	71	Study included ASD group and typically developing (TD) group. ASD group ($n = 71$): 62 boys and 9 girls between 6 and 11 years old (mean = 9 years, 4 months). All diagnosed formally by clinicians (diagnostic criteria not listed). TD group ($n = 199$):98 boys and 101 girls between 6 and 11 years old (mean = 8 years, 7 months)	Experimental (2 phases). Phase 1: Children first watched live event of school assembly involving a theft (version A: phone; and version B: keys) and then participated in brief interview to describe what they saw. Phase 2: Children took part in 4 types of investigative interviews (verbal labels, Sketch Reinstatement of Context, registered performance, or best practice [BP]) 1 week later. Analysis assessed differences in performance across interview conditions	- For ASD group, none of interview interventions significantly improved recollection of details compared with a BP interview - Participants in TD group recalled more correct details in RI and verbal label interviews compared with BP interviews - Overall, detail recollection was significantly higher in RI than BP interview for TD group, but not for ASD group. TD group and ASD group performed similarly in other interview groups
27	Maras and Bowler (2012a); England	32	Study included an ASD group and TD group ASD group ($n = 32$): 24 males and 8 females (mean age = 42 years). All met DSM-IV criteria TD group ($n = 30$): 22 males and 8 females (mean age = 39 years)	Experimental. Participants completed the following scales: (a) State-Trait Anxiety Inventory, (b) Rosenberg Self-Esteem Scale, (c) Brief Fear of Negative Evaluation Scale, (d) Paranoia Scale, (e) Gudjonsson Compliance Scale, and (f) Gudjonsson Suggestibility Scales-2. The GSS-2 involves listening to a 2-min fictional story followed by immediate free recall. Next, participant is asked 20 questions, of which 15 are misleading. Finally, participants are given negative feedback (e.g., noting they made errors) before they answer the 20 questions a second time	- No differences between groups on any of the GSS free recall measures or on the GCS compliance measure - ASD group scored significantly higher on the paranoia scale and on trait anxiety than comparison group - For ASD group, GCS correlated significantly with higher fear of negative evaluation from others and state trait anxiety
28		28			

Table 6 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
	Maras and Bowler (2012b); England		Study included an ASD group and TD group ASD group ($n = 28$): 23 males and 5 females. All met DSM-IV criteria TD group ($n = 28$): 15 males and 13 females	Experimental. First, participants viewed stimuli to-be-memorized, which included 4 pictures of everyday scenes presented on PowerPoint slides one every 20 s with a 5-s delay in between slides. Then, participants completed filler tasks for 1 h unrelated to scenes. Next, participants were asked to recall details from slides in either the (a) same room or (b) different room using the context reinstatement procedure followed by free recall. Participants' recalled details were then coded as either correct or incorrect	-When interviewed in a different room, adults with ASD recalled significantly fewer details and were less accurate in their detail recall than the comparison group - In the same room condition, adults with ASD recalled as many accurate and correct details as the comparison group
29	Maras et al. (2014); England	33	Study included an ASD group and TD group ASD group ($n = 33$): 27 males and 6 females. All met DSM-IV criteria TD group ($n = 35$): 26 males and 9 females	Experimental (2×2 between participants design). After watching a video of an attack of a woman in a taxi cab, participants completed unrelated filler tasks for 30 min. Then, participants completed either the Self-Administered Interview (SAI) or Structured Recall (SR) booklets (time 1). One week later, participants completed a second SR booklet and evaluation questionnaire (time 2)	Time 1 findings: - In ASD group, no difference in correct detail recall between SAI or SR booklet - In TD group, participants who completed SAI booklet recalled more correct details than those who completed SR booklet Time 2 findings: -In ASD group, more details recalled when completing SR booklet compared with SAI -In TD group, more correct details when completing SAI booklet compared with SR
30	Mattison et al. (2018); England	45	Study included an ASD group and TD group ASD group ($n = 45$): All met DSM-IV-TR criteria TD group ($n = 45$): Out of the group of 90 participants, there were 55 males and 35 females	Experimental (2×3 between-subjects design). The independent variables (IV) were as follows: (a) Type of interview (Sketch-Reinstatement of Context [Sketch-RC], Mental Reinstatement of Context [MCR], and control) and (b) group (children with ASD; TD group) Procedure: Each participant viewed a 58-s film, which portrayed a shoplifting event, on the computer. Then participants moved to another room to complete the British Picture Vocabulary Scale III and Raven's Coloured Progressive Matrices measures. Finally, participants were interviewed using one of the four types of interview protocols listed above. Interview coding: Researchers measured episodic memory performance by examining the amount of correct information and categorizing the type of information recalled during free and probed recall phases	- During both free and probed recall phases, TD children recalled more correct information of all types than children with ASD - Both groups benefited from sketching during free recall, but relative effect of sketching on improving retrieval accuracy was greater from children with ASD - Across both groups, Sketch-RC condition resulted in more accurate recall compared with other conditions
31	Mattison et al. (2015); England	45	Study included an ASD group and TD group ASD group ($n = 45$): All met DSM-IV-TR criteria	Experimental between-subjects design with one IV (Sketch-RC, MRC, and control). Procedure: Identical to study #30. Interview coding: Analysis examined	- Participants in Sketch-RC made fewer errors and recalled more accurate details in total than those in the MRC condition

Table 6 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
			TD group ($n = 45$): Out of the group of 90 participants, there were 55 males and 35 females	accuracy of recalled information as well as type of information recalled (e.g., person-, action-, or surrounding-specific information). Sketch coding: Sketches of participants in Sketch-RC condition ($n = 30$) were analyzed and categorized again as related to people, actions, or surroundings	- Children in the TD group recalled a greater quantity of accurate than those in the ASD group - Children in ASD group were significantly more accurate in Sketch-RC condition than other two conditions
32	McCrory et al. (2007); England	24	Study included an Asperger's syndrome (AS group and TD group AS group ($n = 24$). 22 boys and 2 girls with mean age of 13.02 years). All met DSM-IV criteria for AS TD group ($n = 27$). 24 boys and 3 girls with mean age of 12.55 years)	Experimental. Participants viewed scene where two actors pretended they were carrying out a photography project at a school. There were two deviations of the scenes: neutral and social-salient sub-scenes. The next day, children were interviewed with the following phases: free recall, general questioning, specific questioning, and misleading questioning. Analysis included examining accurate information recall and saliency of recalled details. Participants also underwent a neuropsychological assessment to assess executive functioning skill	- Findings suggest that people in AS group were no more suggestible than their TD peers in how they conceded to misleading questions - Individuals with AS recalled significantly less detail (1/3 less information) and discussed less socially salient details than TD peers in free recall phase - Both groups recalled more details from the socially salient compared with neutral scene - General and specific questioning during interviews elicited same amount of new information from both groups
37	North et al. (2008); England	26	Study included high-functioning ASD (hfASD group and TD groups hfASD group ($n = 26$). 21 males and 5 females with mean age of 34.73 years). All met ICD-10 criteria for hfASD TD group ($n = 27$). 21 males and 6 females with mean age of 33.93 years)	Comparative. All participants completed the Gudjonsson Suggestibility Scale 2 (GSS 2; described in study #27 in this table) and the Gudjonsson Compliance Scale (GCS), which is a measure that assesses individuals' compliance. Participants also completed three measures related to their mental health: (a) Hospital Anxiety and Depression Scale, (b) Brief Fear of Negative Evaluation Scale, and (c) Paranoia Scale. One participant did not complete self-report measures	- Compared with TD peers, individuals with ASD did not differ in their likelihood to change answers following negative feedback or tendency to yield to misleading questions on the GSS-2 - Individuals with ASD had significantly higher scores on depression subscales of the Hospital Anxiety and Paranoia Scale measures -ASD group scored significantly higher in measure of compliance compared with TD group, which suggests they may be more vulnerable during interviewing

*Study does not clearly describe how many people with ASD were included in the sample

reported some previous personal and/or professional experience with people with ASD. Despite connections with the ASD community, findings from several studies (9, 10, 33) suggest that CJS professionals may lack knowledge of ASD. In one study (9), researchers found that 40% of LEOs did not recognize the term "developmental disability" and only 50% recognized key features of ASD; furthermore, these LEOs rated their self-competence in supporting individuals with ASD as 2.63 (on a scale of 1–5). Similarly, researchers found that LEOs reported little knowledge regarding the difference between physical, cognitive, and emotional disabilities, and 80% of LEOs were unable to identify key characteristics of

ASD (33). Another study (10) found that, despite LEOs reporting that they change their approaches during interactions with the ASD community (e.g., avoided complex questions, provided additional processing time), 52% of LEOs indicated that they were not equipped to work with individuals with ASD.

The majority of articles (10, 21, 24, 25, 33, 41, 43) focused on ASD-specific training for CJS professionals. Results of studies were mixed regarding CJS professionals' prior ASD-specific training experiences as well as whether the training they had received was effective/useful. In one study (10), only 37% of LEOs had prior ASD training while other studies (25,

Table 7 Professionals' knowledge, experiences, and training related to ASD (n = 12)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
4	Berryessa (2014a); USA	21 judges; 0 with ASD	Participants were 21 California Superior Court Judges	Qualitative: This study was part of a larger project, which utilized a case-study survey and telephone interviews, to investigate how judges perceive and make decisions related to offenders with high-functioning ASD (hfASD). The interview schedule focused on: (a) offenders with genetic disorders (in general and in the courtroom), (b) offenders with ASD and hfASD (in general and courtroom-related), and (c) personal experiences with and media portrayal of individuals with genetic disorders and ASD/hfASD	- The author summarizes judges' perspectives into the following three categories: (a) General media portrayal of hfASD: The majority of judges reported that the media portrays hfASD in a both a positive and negative manner. Judges also perceived that that the media has placed an increasing emphasis on educating the public on ASD (b) Media Portrayal of hfASD and criminality: Majority of judges reported that media coverage related to offending and hfASD was frequently negative, misrepresentative, and potentially damaging to the ASD community (c) Media portrayal of hfASD and the Sandy Hook shooting: Results suggest that judges do not believe their decisions were affected by Sandy Hook media coverage; however, the author noted that the portrayal did affect judges' understanding of the CJS as it relates to mental health issues and ASD. Judges also highlighted how media portrayal potentially frightened or misled the public related to violent behavior of individuals with ASD
5	Berryessa (2014b); USA	21 judges; 0 with ASD	Participants were 21 California Superior Court Judges	Qualitative: Study utilized same method and data as described in Berryessa (2014b) study above. The findings presented in this study are related to the following topics: (a) judges' reactions when they learn an offender has ASD and (b) concerns related to the presence of individuals with hfASD in the CJS	- All judges had either professional or personal contact with individuals with hfASD Judges' responses were summarized into three themes related to how a diagnosis of hfASD affects the offenders' abilities to regulate their actions and criminal behavior: (a) Offenders' predisposition to offending behavior: 13 judges reported that offenders with ASD were predisposed to offend (b) Offenders' view of the world/criminal intent: 8 judges suggested that individuals with hfASD view the world differently due to their diagnoses (c) Offenders' difficulties controlling behavior: 9 judges reported that offenders with hfASD often lack impulse control, which may impact decisions regarding determining responsibility for individuals' actions
9	Chown (2009); UK	120 officers; 0 with ASD	Participants were 120 police officers and staff members from a large metropolitan and medium-sized police force as well as group of police authority and diversity officers	Mixed-Method: Study utilized a survey with open-ended and closed questions focused on the following topics: (a) officers' understanding of ASD, (b) implications of ASD in a policing context, (c) necessary skills for officers to support individuals with ASD, (d) self-assessment of ASD	- 25% of officers reported no difference between cognitive disability and mental illness, and 40% did not recognize the term "developmental disability" - Approximately half of officers recognized key features of ASD - Officers highlighted need to develop basic understanding of and ability to recognize ASD as

Table 7 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
					well as to improve their interview techniques and communication skills - Officers self-reported their average competency in ability to "deal with" people with ASD as 2.63 (1 being least and 5 being most competent) - The author highlighted qualitative responses from the Detective Chief Superintendent, whom appeared to demonstrate the most awareness and understanding of ASD
10	Crane et al. (2016); UK	394 officers; 31 adults with ASD	Participants included 394 police officers; 31 adults (16 males, 5 females) with self-reported diagnoses of Asperger syndrome (AS; 74%), ASD (10%), or autistic disorder (16%); and 49 parents (4 male, 43 female) of children with reported diagnoses of AS (66%), autistic disorder (28%), atypical autism (2%), childhood autism, (2%), or pervasive-developmental disorder (2%)	Mixed-Method: Through online surveys, participants provided quantitative and qualitative responses related to experiences of ASD and policing. Officers also answered questions related to prior ASD-specific training	- Officers adjusted approaches in the following ways when interviewing people with ASD: (a) avoiding complex questions, (b) providing additional time, and (c) being mindful of vocabulary use - 48% of officers reported they were well-equipped to work with individuals with ASD and 29% noted feeling poorly equipped - 37% of officers reported prior ASD-specific training, of which 13% received more than one training. Trainings covered a variety of topics, including (a) general knowledge of ASD (86%), (b) techniques to enhance communication (66%), and (c) strategies to minimize distress (64%) - 92% of officers noted usefulness of ASD-specific trainings - Only 15% of adults with ASD and 13% of caregivers reported satisfactory previous interactions with officers - Caregivers and adults with ASD described varied views regarding the helpfulness of disclosing their diagnoses. Some participants perceived disclosure as helpful for provision of support and to help officers understand their behaviors. Other participants did not find disclosure to be helpful
21	Kelly and Hassett-Walker (2016); US	226 first responders; 0 with ASD	Participants included 226 first responders, including police, firefighters, and emergency medical technicians	Descriptive: First responders completed a survey to evaluate the autism-specific training; 44% of respondents were officers	- 72% of agencies had provided at least one ASD-specific training (mandated by a New Jersey 2008 statute), and 28% had received follow-up trainings. 77% of trainings lasted 2 h or less. 46% of participants reported that training was somewhat or not effective
23	Laan et al. (2013); USA	7 training coordinators; 0 with ASD	Participants included law enforcement officials, who were training coordinators, in the Southeastern part of the USA	Qualitative: Researchers interviewed 7 training coordinators from each state regarding the nature and composition of their training related to mental disorders and ASD specifically. Using content analysis, researchers also compared training materials to existing guidelines/recommendations for training on mental disorders and ASD	- On average, state training materials covered only 54% (8 out of 16) of the Police Executive Research Forum (PERF) recommendations on basic recruit training on mental disorders. None of the trainings covered common medications (and side effects) associated with mental disorders

Table 7 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
					- On average, ASD-specific training materials covered an average of 53% of Debbaudt's ASD training recommendations
25	Ledingham and Mills (2015); UK	8 officials; 0 with ASD	Participants included 8 professionals at law enforcement agencies (6 National Cybercrime Unit; 2 Fraud and Cybercrime Unit) across seven countries	Descriptive: Participants completed an online survey on the following topics: (a) views on whether or not there was an increase in prevalence of cyber offenders with ASD, (b) current level of ASD awareness among agency, and (c) perspectives on characteristics or traits that may be associated with profiles of cyber offenders	- All participants had previously heard of ASD - 7 out of 8 participants reported they had no prior ASD-specific training experience. The one person who did report prior training stated the training included a small ASD section - Participants reported that individuals with ASD were suspected of committing the following cybercrimes: (a) hacking business or person, (b) creating code the enabled crime to be committed, (c) crime related to creation and deployment/management of botnet or malware, (d) child exploitation/pornography, and (e) using compromised payment card information
33	Modell and Mak (2008); USA	124 police officers; 0 with ASD	Participants included 124 police officers ranging from patrol officer to senior detective. Demographic information was not provided	Mixed-Method: Officers completed an online survey with 10 open-ended and multiple-choice questions related to broad opinions on disabilities, including specific questions related to knowledge of ASD and perceived competence in handling crimes involving people with ASD	- 56% of participants did not understand differences between physical and cognitive disabilities. 82% of individuals did not distinguish the difference between cognitive and emotional disabilities - 80% of officers were unable to identify accurate characteristics of ASD. Approximately 35% of the sample only listed "Rain Man" when asked what autism meant to them - When asked about previous general training on disabilities, 48% of officers reported no prior training while 45% noted they received training that was "minimal" and "vague"
36	Murphy et al. (2017); Ireland	11 police officers	Participants included 11 officers who were part of An Garda Siochana in Cork	Experimental: A psychiatrist delivered a 90-min ASD awareness training. Pre- and post-test data were collected using 5 Likert-scale items	- Results highlight participant improvement in awareness of ASD, confidence in their ability to support individuals with ASD during meltdowns, and confidence in their ability to effectively communicate with people with ASD - Officers rated the helpfulness of the training as an 8.8 (post-test), with 10 being the most helpful
41	Richardson et al. (2016); UK	459 police; 255 ASD; 35 caregivers	Participants included 459 police staff, 255 individuals with learning disability (LD) and/or ASD, and 35 caregivers	Descriptive: Participants completed surveys to describe disability hate crime experiences of people with LD and ASD. Officers described their reactions during incidents with individuals with LD and ASD	- The majority of officers reported no prior relevant training in LD or ASD. Some officers reported that hate crime legislation was helpful while others noted it was difficult to interpret - 94% of officers reported some previous personal and/or professional experience with people with LD and ASD - 46% of disability sample (adults with disabilities and caregivers) reported previous experiences as victims of disability hate crimes, which involved experiences ranging from intimidating stares and name calling to sexual assault

Table 7 (continued)

#	Author(s), year, and country	N	Participant information	Methodology	Main findings
43	Sarrett (2017); USA	61 professionals; 0 with ASD	Participants included forensic mental health professionals ($n = 61$; 30 male; 30 female; 1 chose not to answer; age range = 36–65 years)	Descriptive: Participants answered multiple-choice and open-ended survey questions regarding their previous graduate education, post-graduate forensic training, and professional training opportunities in intellectual and developmental disabilities (I/DDs)	- Graduate training: Of the 60 participants who answered the question, 83% reported previous training in graduate school related to ID or ASD - Post-graduate training: Of the 36 participants with post-graduate forensic experiences ($n = 36$), 75% reported receiving ASD- and ID-specific training - Continuing Education Units (CEU) and non-CEUs: Of the 59 participants that chose to answer the question, 49% reported attending CEU training on ID and 46% reported ASD-specific CEU training. Officers reported learning the following ASD-related content during trainings: basic overview, assessment-related information, diagnostic information, current ASD research, and focus on forensic aspects - 36% of the 39 respondents who left optional open-ended comments reported the need for additional ASD- and ID-specific training, and 21% of respondents highlighted the need for a forensic focus during training
49	Teagardin et al. (2012); USA	82 officers	Participants included 82 law enforcement officers from one department. Officers were excluded if they had a family member or close relative with ASD. 42 and 40 officers were in the training and control groups, respectively	Experimental: Participants completed a pre-test before viewing a 13-min long video describing an overview of ASD, recognition of ASD symptoms, and appropriate responses to calls involving ASD community. A post-test was completed. A randomized, waitlist-controlled, between-groups design was utilized to evaluate the effects of ASD-specific officer training	- Participants in the training group performed significantly better on post-tests than controls who had not yet viewed the training video - On average, participants in the training group scored 29% on the pre-test and 53% on the post-test. After viewing the video, the control group scored an average of 47% on the post-test - After viewing the training, both groups reported an increase in confidence to identify someone with ASD in the community as well as to interact with individuals with ASD

41) found that the majority of LEOs working in cybercrime and fraud units and on disability hate crime cases had not received prior ASD training. Other studies (21, 33, 43) reported higher percentages of CJS professionals receiving prior ASD training. Specifically, studies found that 72% of agencies in New Jersey (21) and 52% of LEOs in the USA (33) had received prior ASD training. Furthermore, results from one study (43) suggest that ASD-specific training is received at various career points. For example, 83% of LEOs received training during graduate school, 75% of LEOs reported ASD-specific training during post-graduate forensic experiences, and only 46% of LEOs described ASD training as part of continuing education. In many studies, LEOs noted that the trainings they received were only "somewhat"/not effective (21) or "minimal" and "vague" (33). Further, a review of law enforcement training from seven states in the USA found that ASD-specific curricula were inconsistent with prevailing training recommendations. Finally, two studies (36, 49) employed designs, one experimental, to evaluate the effectiveness of ASD training; however, post-test results from both studies highlight improvements in LEOs' awareness of ASD and confidence in supporting individuals with ASD.

Discussion

The scoping review produced a comprehensive picture of empirical research being conducted in the area of ASD and CJS interaction. From a broad perspective, research is focused on multiple aspects of interface between individuals with ASD and CJS settings using multiple investigative methods across different countries. There also appears to be a growing interest in studying aspects of ASD-CJS interaction as evidenced by a larger number of relatively recent publications. The increased recent interest and research activity is likely related to multiple influences, such as media coverage of problematic ASD-LEO interchanges and some states mandating ASD-related training for first responders (e.g., Florida, New Jersey).

The scoping review identified that the most frequent type of research involved establishing estimates of contact occurring between individuals with ASD and the CJS (27%). The next most frequent domain of investigation involved describing various CJS professionals' perceptions, knowledge, experiences, and training related to serving individuals with ASD (22%). Two themes were equally represented in the review (i.e., 18% of articles): (a) perceptions of the ASD community regarding their interactions and experiences with the CJS and (b) documenting and improving CJS interviewing procedures with individuals with ASD. Descriptive studies of characteristics of individuals with ASD were the least frequent type of investigation represented in the review (i.e., roughly 15%).

Research spans a broad temporal sequence of potential interactions between individuals with ASD and the CJS, from

first response by LEOs to long-term incarceration. The descriptive work describing occurrence and types of encounters between individuals with ASD and CJS is helpful in establishing general expectations regarding frequency of encounters for first response calls, general jail settings, and forensic prisons. The literature documents a wide range of estimates regarding encounters with LEOs; however, the general conclusion is that such encounters are not uncommon. Elopement, aggressive behavior towards individuals within the home, and aggressive behavior towards individuals within the community were common reasons for contacting LEOs. Information regarding the frequency and nature of first responder calls for LEOs is important for initial training and ongoing professional development.

The literature examining experiences of individuals with ASD with the CJS across various contexts is also compelling. During initial interactions with LEOs, individuals with ASD and their caregivers identify varied outcomes of calls and interactions with other community agencies and members, such as schools, emergency departments, shopping venues, and neighbors. Caregivers and individuals with ASD report varying level of satisfaction with interactions with LEOs. Many times, the interaction between LEOs and ASD is positive and factors that support such outcomes include empathic listening and seeking input from caregivers regarding how to approach the individual with ASD. Several studies concluded that limited knowledge of ASD for LEOs negatively impacted first responder calls. Similarly, poor communication between caregiver, LEO, and individual with ASD was noted as problematic during negative encounters with police.

Conducted almost exclusively in England, a small number of comparison and experimental studies examined the impact of various settings, contextual variables, and interviewing techniques on individuals' recall of events and consistency of reporting. This set of studies provides guidance to CJS professionals regarding variables that support accurate recall during investigative interviews. Within this group of investigations, a diversity of individuals is represented including individuals with and without intellectual disability and individuals across age groups. Valuable analysis of archival data points to the role of interviewer behavior on recall, such as the likelihood of an individual's change in response when interviewer questions were repeated. Our review did not identify research examining the impact of training on CJS interviewing techniques, which would seem to be a worthwhile area of investigation.

The collection of articles focused on perceptions, knowledge, and training reveals important information about various CJS professionals' views on ASD. Relevant to initial contact between individuals with ASD and the CJS, LEOs frequently report limited professional training when responding to calls involving individuals with ASD. Across several studies,

LEOs reported limited knowledge of ASD and endorsed important misperceptions, such as associating autism with the movie "Rain Man." Multiple studies documented LEOs' desire to increase their understanding of ASD and how to improve behavior in response to a call involving an individual with ASD. Feedback from LEOs completing ASD-related training revealed significant variation regarding the usefulness of the training session, with a sample from the UK endorsing a high degree of satisfaction and a sample from the USA reporting that training was only somewhat useful. Outside of LEOs, very little research has focused on other CJS professionals' perceptions, knowledge, education, and training related to ASD. Several studies in the USA focused on judges' ideas regarding the relationship between ASD and offending behavior, with a majority of judges endorsing the belief that individuals with ASD are predisposed to engage in offending behavior. Our review did not identify research that examined the impact of training CJS professionals outside of LEOs.

Potential Implications

Within the past 10 years, individuals working in the field of human and civil rights law have emphasized the importance of individuals with disabilities having "access to justice" in order to be fully included into society (Ortoleva 2010, p. 284). Given the fact that CJS professionals play important roles in keeping society and communities safe as well as ensuring all individuals have equal access to justice, it is essential that they are well-equipped to support the needs of all community members, including individuals with ASD. Although ASD is relatively common (Baio et al. 2018), CJS professionals may not always identify ASD and/or employ effective strategies to support individuals with ASD (Berryessa 2014a/b, Crane et al. 2016; Modell and Mak 2008). Thus, it is critical to continue to explore CJS professionals' previous training experiences, interactions with members of the ASD community, and future training needs. Currently, LEOs are the focus of much of this research, and efforts to understand training experiences and perspectives of other CJS professionals should be expanded.

In the present study, across several topics, literature consistently acknowledged the importance of including perspectives of individuals with ASD, caregivers, CJS professionals, and the larger community in understanding interactions. In our opinion, targeting improved interactions and outcomes requires input from each group of stakeholders and should be reflected when training LEOs and other CJS professionals. For example, training should include multiple perspectives, such as first responders, caregivers, and individuals with ASD. The present review indicates that much more information is needed to understand training content and format given that little information is known about ASD-specific training for CJS professionals. Training programs should consider the specific roles that CJS professionals perform (e.g., patrol officers, detectives, judges, correction

officers) and tailor content to the intended audience. In addition, training programs should discuss how to identify ASD and employ strategies to support individuals with ASD. Further, training should address misconceptions related to ASD, potential misinterpretations of the behavior of individuals with ASD, and the differences between ASD and other disabilities.

Outside of formal didactic presentations, community-based events are also recommended to allow positive interactions to occur between CJS professionals and individuals with ASD and their caregivers. We suggest that community events include resources, feature support from professionals with ASD experience to facilitate positive interactions, and be co-sponsored by local ASD support groups and local law enforcement. CJS professional and agencies should consider developing partnerships with local ASD-related support groups and organizations as well as members of the ASD community. It may be helpful to facilitate regular meetings with advocacy organizations and members of the ASD community to (a) discuss the roles and mission of CJS agencies, (b) engage in conversations with community members, and (c) share information regarding ways that individuals with ASD can feel supported when they come into contact with CJS professionals and agencies.

Limitations of the Review

Although the scoping review presents several strengths, several limitations exist. Specifically, findings are limited to the search terms, databases, and journal included in the process, which means that it is possible that not all available research was identified. In addition, this study did not include an evaluation of quality of included studies; however, quality assessments of studies are not typically conducted in scoping reviews given the large variety of study designs and research approaches (Rumrill et al. 2010). We limited our review to work published in English, which restricted our coverage to countries where English is the official language or one of several common languages, such as the USA, UK, Canada, and Scandinavian countries. Another limitation is that all 55 studies were categorized into five themes based on discussions between two researchers, and articles could only be assigned to one theme, which raises the possibility that researchers' biases regarding how to classify articles could have impacted conclusions. Finally, an inter-rater reliability statistic was not calculated for decision-making that occurred when sorting the 55 articles into five themes.

Research Gaps and Future Directions

There is need for improved designs to document the impact of training for various CJS professionals. To date, two studies have documented immediate benefits of LEO training on ASD awareness, ASD knowledge, and confidence in responding to a call related to ASD (see AUTHORS 2019 for review). The

interventions consisted of single session presentations on key features of ASD and recommended strategies to use during an interaction with an individual with ASD. Outcome data were collected via self-report immediately following the training sessions, thereby limiting documentation of the impact of training over time and during in vivo interactions. Future studies should examine behavioral outcomes to evaluate the impact of LEO training, perhaps through comparing pre-training to post-training rates of the use of force and handcuffs in responding to calls. Likewise, controlled designs are needed to conclude that improvements in knowledge and self-confidence are due to the educational intervention delivered (AUTHORS 2019).

Again, our review did not identify research examining the impact of training for other CJS professionals, and this omission warrants future study. For example, the impact of ASD-specific training of judges, detectives, and legal representatives is sorely needed as each of these CJS professionals significantly impacts the experience and outcome for individuals with ASD. Training for each group of CJS professionals needs to be tailored to the audience as roles across each group differ. We recommend that trainings be based on initial needs assessment, perhaps through systematic interviewing of multiple CJS professionals, individuals with ASD, and their caregivers.

The scoping review identified research that spans various stages of ASD-CJS contact; however, we found no empirical articles that examined comprehensive approaches to training multiple CJS professionals. Training efforts that include representation from various CJS professionals within local systems would seem worthwhile as individuals with ASD may encounter LEO, lawyers, judges, and corrections officers within a local jurisdiction. Training each group of professionals may improve overall CJS functioning when serving individuals with ASD, such as facilitating transitions between departments.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interests.

Ethical Approval   All procedures performed were in accordance with the ethical standards of the institutional review board of the institution and with the 1964 Helsinki declaration and its later amendments.

Informed Consent   Informed consent was not applicable to the current study as it is a review paper.

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