The Influence of Autistic Behaviours on Judgments Formed in a Forensic Context

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Summary

Although it has sometimes been reported that individuals diagnosed with autism spectrum disorder (ASD) are overrepresented in the criminal justice system, such conclusions are undermined by a variety of methodological problems such as inadequate sample sizes and insufficient control over comorbid factors (Brewer & Young, 2015). While sensationalised media reporting has often provided links between ASD and criminal activity, leading to a perception that ASD individuals may be more likely to offend, these claims are unfounded (Jones & Harwood, 2009). Rather than ASD individuals being prone to criminal offending, the behavioural features of individuals with the disorder may lead to a greater likelihood of their coming to police attention and their interactions with police progressing negatively. The latter issue was the focus within this thesis.

While behavioural presentation of ASD adults is quite variable, there are a number of behaviours that are commonly associated with a diagnosis of ASD. These include gaze aversion, inappropriate or flat expression of emotion, verbal abnormalities and repetitive body movements. Importantly, these behaviours have also been demonstrated to be relied upon by observers as cues to deception, and indicative of low credibility, within various mock-juror laboratory studies. A limited number of studies have examined perceptions of ASD behaviour within a criminal context, with these studies using written information describing the offender, or presenting the ASD witness visually but unable to control for the testimony details that were freely recalled (Berryessa, Milner, Garrison, & Cho, 2015; Maras, Crane, Walker, & Memon, 2019; Maras, Marshall, & Sands, 2019).

Across three experiments I examined whether a police suspect, played by an actor who displayed a combination of common ASD behaviours, would be more negatively evaluated by participants and judged as guilty during an interview than when ASD

behaviours were not displayed. Using an actor allowed for specific manipulation of the behavioural display whilst controlling for the level of detail within the suspect testimony.

Overall, the findings of the studies within this thesis showed that a suspect was evaluated more negatively when participants viewed the suspect displaying ASD behaviours compared to those who viewed the suspect displaying none of those ASD behaviours. These judgments were a function of those behaviours violating observer expectations of appropriate suspect interview behaviour, leading to more negative impressions of the suspect and a greater likelihood of a guilty verdict. This judgmental bias was present when there was other strong evidence presented (incriminating or exonerating) upon which to base decision making. However, bias was reduced when those behaviours were explained by the disclosure of an ASD diagnostic label. Labelling led to more positive impressions of the suspect compared to when there was no label and, even for those who decided the suspect was guilty, labelling led to reduced impressions of criminal responsibility. Further research is suggested to examine the effect of ASD behaviour upon evaluations and outcomes of a live interaction, using police officers as participants, and to examine evaluations of ASD adults rather than an actor displaying those behaviours.

Declaration

I certify that this thesis:

1. Does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and

2. To the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Additionally, I confirm that I received an Australian Government Research Training Program Scholarship to support the completion of this thesis (2016-2019).

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CHAPTER 1

Introduction

Overview

The interactions between police investigators and suspects for a crime, and the impressions formed by investigators during these interactions, play key roles in determining the course of questioning that police pursue and, ultimately, the outcomes for suspects. Transcripts or audio/video recordings of these interactions may also be presented as evidence in any ensuing trial and shape decisions made by judges and jurors. Observational studies and analyses of police records indicate that numerous factors may influence the manner in which an interaction between officers and citizens play out (Braithwaite, Brewer, & Strelan, 1997). These include individual characteristics of the officer (e.g., level of experience), situational factors (e.g., crime scene visibility and characteristics of the suspect) and legal factors (e.g., severity of the offence). The demeanour of the suspect, however, has been highlighted as one of the most important factors in police-citizen interaction outcomes, with suspects who show greater disrespect towards police authority more likely to be arrested or to receive a harsher penalty (Braithwaite et al., 1997). Additionally, those who display behaviours that are considered to indicate deception are likely to receive low credibility evaluations, perhaps leading to poorer interaction outcomes for that individual (Winkel, 1999).

I argue that demeanour and deceptive behaviours have this influence over interaction outcomes as a result of violating expectancies held by an observer. Specifically, I argue that officers, or those playing the role of an officer, expect suspects to behave in a manner that aligns with their beliefs regarding respectful and truthful behaviour. When those expectancies are violated there is a change in the officer's impression formation and behaviour which may lead to poorer outcomes for the suspect. Thus, it is important that the suspect behaves in a manner that conforms to the investigator's expectations regarding appropriate behaviour and

does not raise further suspicion. When the demands of the situation are understood by suspects, it may be relatively easy to adapt their behaviour in ways that fit with normative expectations and reduce any impression of guilt. However, this may be difficult for certain individuals who may be innocent but (a) do not have the capacity to recognise the likely impact of their behaviours during the interaction, (b) do not realise when an interaction is going awry, or (c) may not have the capacity to produce situation-appropriate behaviours. Individuals with autism spectrum disorder (ASD) may well fall into these categories.

Advocacy groups for ASD individuals have drawn attention to behavioural characteristics of ASD that may complicate interactions these individuals have within the criminal justice system. For example, the National Autistic Society (2011) presents in their position statement their belief that ASD individuals may more easily come to the attention of the police due to "their social and communication difficulties being misunderstood and because they are not given appropriate support." They argue that "their actions and behaviour can easily be misinterpreted and subsequent actions may escalate the situation". Crane, Maras, Hawken, Mulcahy, and Memon (2016) surveyed English and Welsh police ($N = 394$) on their experiences with ASD adults, as well as surveying ASD individuals ($N = 31$) and their parents ($N = 49$) on their interactions with criminal justice system professionals. Less than half of the surveyed police officers were satisfied with how interactions with ASD individuals were carried out. This was mirrored by the high rate of dissatisfaction reported by ASD individuals themselves regarding these interactions and the limited knowledge police held regarding ASD. Furthermore, in their survey of judges, barristers and solicitors in England and Wales ($N = 33$), Maras et al. (2017) found similar reports of a lack of understanding by criminal justice system professionals about the difficulties that may be associated with ASD, with this often leading to the absence of adequate support for those individuals.

Few empirical studies have examined how the behavioural characteristics of ASD adults are perceived by an observer within a criminal context. Indeed, only one published study to date has compared impressions of credibility made by observers regarding ASD and non-ASD adult witnesses (Maras, Crane, Walker, & Memon, 2019). The study showed participants the video-recorded testimony of witnesses relaying details of an event: 17 witnesses had a diagnosis of ASD and 17 did not. Surprisingly, even when participants were unaware of the ASD witness's diagnosis, there was no difference in the perceived credibility of ASD compared to non-ASD witnesses. The researchers suggested this may be due to ASD and non-ASD witnesses providing a similar level of correct details within their account of the event, thus overriding the impact that any behavioural difference may have. Additionally, each witness video was only six minutes long and did not involve social interaction; only free recall of the event was observed. Maras, Crane, et al. suggested that the limited social behaviour observed may have constrained any impact on credibility judgments.

Other research has examined perceptions of ASD adults and their behavioural displays within a non-criminal context. Several studies have examined the likeability and other first impressions formed by observers who viewed static images and short video clips of ASD and typically developed individuals auditioning for a television show. This research found that, when unaware of an ASD diagnosis, observers perceived ASD individuals to be less likeable, attractive, and approachable; more awkward and submissive; and that they would be more hesitant to interact with those ASD individuals compared to the typically developed individuals (Sasson, Faso, Nugent, Lovell, Kennedy, & Grossman, 2017; Sasson & Morrison, 2019). Within the study by Sasson et al. (2017), however, there was no difference between the two groups for impressions of trustworthiness. This may have been due to the character of the individual not being relevant within the context of that study (i.e., an interview for a game show), compared to the expected effect that those ASD

characteristics may have upon reducing character judgments of trustworthiness within a criminal context.

The aim of my research was to build on this limited body of existing research to determine how ASD behaviour influenced impression formation within a criminal context. Specifically, I wished to look at how those ASD behaviours impacted decision making and impressions of guilt when displayed by a suspect during a mock police interview (compared to when they were not displayed). Participants viewed video of a full interview with a suspect captured from the point of view of the interviewer, were provided with a monetary incentive to quickly and accurately determine the suspect's guilt (hopefully thereby providing a degree of motivation that might parallel that of an officer who would be incentivised as part of their work to resolve matters efficiently), were given the opportunity to choose at which point during the interview to make their final verdict, and were probed for evaluations at several points during the interview to gain a more comprehensive view regarding how impressions may change over the course of an interview. Additionally, within the suspect interview only the behaviours that were displayed by the suspect were manipulated in an attempt to isolate how ASD behaviour specifically influenced decision making, whilst controlling for the actual information relayed by the suspect so that memory report and length of dialogue could not influence outcomes. Studying the interaction and impact of ASD behaviour in this way has the potential to advance understanding of how interactions between police and suspects during the early stages of the investigative process may shape the course of the investigation and the outcomes for the suspect.

Factors that may Shape Interaction Outcomes: Expectancy Violations Theory

Theories of interpersonal communication provide explanations for how an interaction may become problematic, with suggestion that interactions characterised by certain common ASD behaviours may be ones that could lead down that path. Specifically, it is argued that

ASD behaviours may violate expectancies interviewers hold regarding appropriate behaviour in an interview setting, perhaps frustrating the interviewer's goals and, in turn, shaping the outcomes of the interaction through influencing interviewer decisions.

When an individual enters an interaction they are likely to hold expectations, either implicit or explicit, regarding the manner in which their interaction partner should behave. According to the expectancy violations theory (Burgoon, 1993) these expectancies then guide the way in which an interaction plays out, depending on whether they are confirmed or violated by the interaction partner. Expectancy violations theory posits that expectancies may be either negatively or positively violated, suggesting that when expectancies are violated negatively (e.g., a suspect behaves rudely by disengaging in eye contact and appearing not to listen) the interaction is likely to proceed with more negative outcomes as opposed to when the observer's expectancies are confirmed (e.g., a suspect engages in eye contact) or when they are positively violated (e.g., a suspect appears overly polite, engaging, interested and concerned). Expectancies provide a framework for interactions and allow for planning and adaptation of communication style before and during an interaction, depending on how those expectancies become shaped during its course.

Studies that have examined the outcomes resulting from violated expectancies have indicated their impact on interpersonal communication through (a) influencing an observer's perceptions of the credibility and persuasiveness of the speaker, (b) producing heightened arousal in an observer and distracting their attention, (c) influencing the observer's language choices and compliance-gaining strategies, and (d) shaping observer behaviours leading to greater eye contact, closer body positioning and more direct posture toward an interaction partner (Burgoon, Coker, & Coker, 1986; Burgoon & Hale, 1988; Burgoon, Birk, & Hall, 1991; Burgoon, 1993). These studies have demonstrated that the outcomes of these interactions are shaped by an individual's perception of how rewarding it is to communicate

with the interaction partner, the direction of the violation of expectations, and the extent of the violation. For example, Le Poire and Burgoon (1994) examined the ability of expectancy violations theory to explain behavioural changes that arose as a result of violated expectancies. The behavioural changes examined were the reciprocation and compensation of involvement actions by participants during an interaction with confederates acting as medical students. It was found that when confederates displayed high involvement (e.g., strong eye contact, facial animation, vocal expressiveness), this positive violation caused participants to increase their involvement to match these behaviours. Conversely, they reduced their involvement when the confederate negatively violated expectancies by displaying decreased involvement (e.g., detached style, low eye contact, monotone). Physiological arousal (heart rate and skin temperature) increased for both positive and negative violations of involvement, although it did not increase as a function of the extent of the violation. The behaviour of participants was directly predicted by the positive or negative direction of the violation (i.e., changes in involvement).

Bond et al. (1992) demonstrated that judgments of deception could also be accounted for by the expectancy violation model. Participants viewed videotapes of students describing how they felt about acquaintances and were told some students would be lying about their feelings. Participants viewed these videos without sound and their task was to determine from the student's behaviour who was lying and who was being truthful. When the students displayed nonverbal behaviours that represented negative violations of expectancies (e.g., oddly raised their arms, tilted their head or maintained an intense fixation of gaze), they were perceived as being deceptive. Note that the particular behaviours were not the stereotypical cues used to predict deception (e.g., behaviours most commonly considered to cue deception include averted eye contact, repetitive movements and verbal abnormalities), thereby

highlighting the impact that any behavioural display that violates expectancies could have upon inferring deception.

Expectancies, in general, relate to societal norms of appropriate behaviour implicitly agreed upon across individuals within a society, involving shared understanding and rules (Burgoon, 1993). However, expectancies may also become individually determined based on a number of characteristics, including those of the communicator (e.g., demographics, attractiveness, personality), the relationship with the interaction partner (e.g., familiarity, liking, attraction, status equality), and the context of the interaction (e.g., privacy, formality, task demands) (Burgoon, 1993). It is possible for observers to recognise and be affected by a violation of expectancies without the capacity to pinpoint what it was that was violated during the interaction (Bond et al., 1992) or even to recognise that a violation occurred at all (Nisbett & Wilson, 1977).

Overall, communication within the criminal justice system is goal-oriented and police officers hold a number of expectancies regarding how these goals will be achieved through interaction with others. The expectations held by individuals when they set goals, particularly when it is a requirement of their work, is that those goals will be attained. In line with expectancy violations theory, when a blockage of goal attainment arises, a negative violation occurs which may frustrate that individual and in turn cause them to adjust their behaviour. For police officers, goal blockage may arise when there is an indication through the citizen's behaviours that the information they are being provided with is false, or the citizen refuses to provide information. Both outcomes produce negative violations of expectancies and result in a conflict between officer and citizen (Braithwaite et al., 1997). In one study researchers observed the interactions between officers and citizens during real-life conflict situations and studied the differences in conflict resolution (Braithwaite et al., 1997). It was found that if citizens expressed a negative attitude through their demeanour, perhaps in the way they spoke

or acted towards officers, the officers would adjust their approach to questioning and become more hostile. Another example of this under experimental observation was found in a study by Mikolic, Parker, and Pruitt (1997) which examined coercive tactics used by individuals to gain compliance from an annoying, non-compliant confederate. As their goal to create a birthday card was blocked by the confederate who withheld the necessary supplies, participants became increasingly angered and their responses to the confederate became more aggressive and coercive.

Factors that Influence Police Behaviour during Interactions

The literature on policing effectiveness highlights that, after controlling for legal variables (e.g., crime severity, offence type, criminal history), police behaviour is strongly guided by the characteristics of the individual with whom they are dealing (e.g., their demeanour, race, age). For example, when a citizen shows disrespect towards officers, or is of a low socio-economic status, the officer is more likely to arrest that citizen or implement a harsher penalty (Black & Reiss, 1970; Engel, Sobel, & Worden, 2000; Lundman, 1974; Novak, Frank, Smith, & Engel, 2002; Piliavin & Briar, 1964; Smith & Klein, 1984; Sykes & Clark, 1975).

Although not yet empirically tested, it is possible that these variables influence policing behaviour and decision making because they violate expectancies regarding how these interactions should play out and block goal attainment. For example, police strive to gain truthful statements and have their authority respected during communication with a citizen. Therefore, when a disrespectful demeanour is displayed or when there is an indication through the citizen's behaviours that they are being deceptive, a violation occurs which may elicit a negative reaction in the officer's behaviour toward that citizen (Mastrofski, Reisig, & McCluskey, 2002). Although legal variables have a strong impact on decision making (Bock & Frazier, 1977; Bynum, 1982; Frazier & Bishop, 1985; Goldkamp,

Gottfredson, Jones, & Weiland, 1995; Hagan, Hewitt, & Alwin, 1979; Kakar, 2002; Potter & Kakar, 2002; Tracy, 2002; Wooldredge, 1998), the present study specifically focuses on the influence of demeanour and different behaviours displayed by the suspect on the course of an interaction when controlling for legal variables (i.e., through maintaining the same details within the testimony for all suspects).

Demeanour. Demeanour refers to various outward displays of behaviour, which in certain combinations may be interpreted by an observer as conveying a particular attitude (Black & Nolan, 1990). For example, a hostile demeanour may encompass a furrowed brow, a raised voice and large and quick gestures, whilst a nervous demeanour may be observed through repetitive body movements such as tapping the table, eyes darting around the room and a shakiness in vocal tone. Whilst these behaviours may be displayed by an individual, this does not necessarily mean that individual feels hostile or nervous. Their demeanour is determined by the observer interpreting and categorising those behaviours. When this behavioural interpretation violates expectancies regarding appropriate demeanour, a biased judgement of the individual being observed may result, with the nature of the judgment dependent on the direction of the violation (Burgoon, Blair, & Strom, 2008).

In research on the influence of demeanour upon interactions within the criminal justice system, Frazier, Bock, and Henretta (1980) found that individuals who were arrested and displayed respectful demeanour received a lower bail amount from a judge and were 35% more likely to be released on their own recognisance than those displaying disrespectful demeanour. Disrespectful demeanour was classified as expressions of disgust, smirks, or looking as though they found the situation humorous, displaying bored posture, using disrespectful words or attempting to deceive the judge by giving misleading information. Those classified as being actively respectful would give long and detailed responses and attempt to explain the circumstances of the offence with an empathetic expression of respect;

and those who were passively respectful appeared to be most desirable to observers through quietly and politely following all instructions and answering questions without hesitation or additional irrelevant details. In relation to expectancy violations theory, it is likely that those showing disrespect would qualify as negatively violating expectancies, those showing active respect would be confirming expectancies, and those showing passive respect would likely be either confirming or positively violating expectancies, depending on the individual observer.

Additionally, research has focused on the influence of demeanour on a police officer's decision to use their authority during an interaction. Engel, Sobol, and Worden (2000) used observational data collected from 24 police departments in the United States, with results revealing that when controlling for variables of suspect sex, race and features of the crime, a suspect's demeanour exerted a strong, significant influence upon police decision making. With an increase in hostile and disrespectful demeanour on the part of the suspect, police were more likely to use a greater amount of force and to arrest a suspect than when they displayed a compliant demeanour (Engel et al., 2000). Further cues used to interpret demeanour were highlighted by Piliavin and Briar (1964) in their study of police decisions to arrest juvenile delinquents. It was concluded that juveniles who showed remorse for their criminal actions, showed respect to the officers and showed worry for whatever lawful action may be taken against them were less likely to be arrested. This may have been due to those juvenile behaviours confirming, and potentially positively violating, police officer expectancies regarding appropriate conduct for the situation. In contrast, juveniles who appeared irritable, stubborn, or nonchalant during interactions with officers were considered deserving of further action taken against them. Again, this was likely due to those juvenile behaviours violating the norms and expectations of police officers for this type of interaction.

Deception detection. Demeanour is heavily relied upon by observers when drawing inferences regarding the veracity of what is being communicated by the individual whom

they are observing. The main objectives for a police officer when interviewing a suspect are to collect as much relevant information as possible, and to evaluate the usefulness of that information. The latter objective is, of course, more likely to be realised if police can detect whether what they are being told is true or whether they are being lied to. Therefore, there is a large emphasis placed by police officers on detecting deception when investigating a crime. Any violation of expected truthful information would be likely to cause a large discrepancy in expectations due to the significant negative impact deceptive information would have upon their case.

Non-verbal behaviours that are commonly found to be relied on by police as indicating deception, and are typically associated with nervousness, include abnormal speech quality (e.g., slower speech rate and a higher pitched voice), gaze aversion, inappropriate emotional expressions, and an increase in repetitive movements of body parts (Strömwall & Granhag, 2003; Winkel, 1999). These same behaviours have been directly linked to causing an observer to change their own behaviour as well as the impressions they form about an interaction partner who violates their expectancies regarding these behaviours (Burgoon et al., 1986; Burgoon & Hale, 1988; Burgoon, et al., 1991; Burgoon, 1993; Le Poire & Burgoon, 1994).

Research has demonstrated that police officers are often very poor lie detectors, with officers able to accurately discriminate a truthful statement from a lie perhaps only 45-60% of the time, levels not much different from chance (Vrij & Mann, 2001). Although officers may often have a clear notion of which behaviours indicate deception, research suggests important discrepancies between actual and perceived indices of deception. Moreover, the view that has prevailed in the deception literature that there are some cues that, despite their impact being relatively weak, reliably highlight deception has been challenged. In a recent and quite scathing review of the deception detection literature, Luke (2019) questioned

whether those behaviours expected to be indicators of deception reliably cue actual deception judgments, criticising much of the existing research as suffering from underpowered designs, limited replication, and selective reporting which has contributed to error and bias. Thus, it is unclear what, if any, behaviours can be reliably used in detecting lies. Yet, as outlined, Winkel (1999) and Strömwall and Granhag (2003) have argued, whilst police officers may struggle to accurately identify liars, they still base their decision making on expectations of certain behaviours, whether reliable or not. Therefore, when violations of expected truthful behaviour occur, and these behaviours are interpreted as deceptive, unjust negative outcomes may result due to those expectations potentially not being based on reliable deception cues.

Indeed, several studies which examined the influence of behaviours that are commonly relied upon in deception detection on impressions formed by police officers and, in turn, their behavioural reactions, lend support to this perspective. Particularly relevant are a number of race studies, not included in the literature review by Luke (2019), that found Black citizens were perceived more negatively than White citizens due to the greater likelihood of the former displaying non-verbal behaviours aligned with those that indicate deception. A large number of studies conducted by Winkel and colleagues (*Ns* ranging from 92-195) found clear differences during police interviews in the non-verbal behaviours of Black and White citizens (Vrij & Winkel, 1991; Vrij & Winkel, 1992; Winkel & Vrij, 1990). For example, Black citizens were likely to "exhibit more speech disturbances; more gaze aversion; smile more often; make more self-manipulations; more hand, arm, and trunk movements; more often shift positions; wait longer before answering questions (latency period); and tend to answer questions more indirectly" (Winkel, 1999, p. 277). To examine the impact these behaviours had on the impressions formed by White police officers, a series of experiments used a method of showing officers videos of several Black and White citizens who had been stopped on the street or interviewed as potential suspects back at the police

station (Winkel, 1991; Winkel & Koppelaar 1986; Winkel & Vrij 1990). Black citizens displaying those non-verbal behaviours that aligned with deception cues were perceived most negatively by officers. This negative impression was based on the belief that those citizens were lying to conceal the truth, and their demeanour appeared to be "more aggressive, more dangerous, more suspicious, more emotionally unstable, as less cooperative, more stressed, nervous, and tensed" compared to officer expectancies of appropriate citizen behaviour, thereby causing a negative violation (Winkel, 1999, p. 280). Those studies in which more than one of the 'deceptive' non-verbal behaviours were being displayed by citizens found that the strength of negative impressions formed by officers increased with the frequency of those behaviours. Additionally, it was suggested by Winkel (1991) that these negative evaluations contributed to outcomes such as a higher likelihood of Black citizens being stopped and questioned on streets, brought back to the police station for invalid reasons, and receiving longer sentences.

ASD Characteristics that may lead to Violated Expectations during Interactions

A number of behaviours that research indicates are likely to affect police officers' decision-making during interactions and contribute to negative evaluations of the person(s) with whom they are interacting, are also commonly observed in ASD individuals. This suggests the possibility that those displaying characteristic ASD behaviours will be more likely to violate the expectations of their interaction partner regarding normative and truthful behaviour, with potential adverse effects on the direction that the interaction takes.

DSM diagnosis. The fifth edition of the Diagnostic and Statistical Manual of Mental Conditions (DSM-5) considers autism spectrum disorder (ASD) as encompassing impairment along a spectrum of two domains, the first relating to social communication and interaction, and the second related to restricted interests and repetitive behaviours (American Psychiatric Association, 2013). The DSM-5 criteria highlight impairments in verbal and non-verbal

social functioning which encompass stereotyped behavioural patterns, focused interests, and diminished ability to understand the emotions and intentions of others during social interaction. Furthermore, the DSM-5 emphasises particular dysfunction for individuals with ASD in the expression of situation-appropriate emotions. These symptoms may manifest in a number of verbal and nonverbal behaviours such as lack of affect, incongruent facial expressions (e.g., continuous smiling when the situation is sad), and limited prosody.

Although the display of these behaviours is not ubiquitous, nor of the same severity for all ASD individuals, there are patterns which suggest on average there is some level of deficit in social functioning (Nuske, Vivanti, & Dissanayake, 2013). Moreover, there are strong parallels between the behaviours encompassed by a diagnosis of ASD (i.e., abnormal speech quality, gaze aversion, inappropriate emotional expression and an increase in repetitive movements) and those behaviours now known to negatively influence impressions formed by an interaction partner and, in turn, induce negative behavioural change in that partner. Therefore, when ASD adults are involved in an interaction where there is an expectation they will be behaving truthfully, their behaviours may contribute to more negative outcomes during that interaction compared to their typically developed adult counterparts. In the next sections I consider each of these behaviours in turn.

Speech quality. Abnormal quality of speech has been identified as a key feature for individuals with autism when communicating (Baltaxe & Simmons, 1985; 1992; Paul, 1987). In particular, these abnormalities involve monotone intonation, irregular patterns of stress on words, deficits in control of pitch and intensity, and vocal quality differences (Paul et al., 2005). Not all ASD individuals show these deficits: for example, studies by Simmons and Baltaxe (1975) and Shriberg et al. (2001) reported 57% and 47%, respectively, of individuals with ASD in their samples had poor speech quality. But, for those that do, negative consequences may arise. Paul et al. (2005) examined the influence that poor speech quality

may have on perceptions of communicative competence, comparing reactions to age-matched male adults with high functioning ASD, Asperger syndrome and typically developed adults. Subjects' speech quality was assessed using the Prosody-Voice Screening Profile (Shriberg, Kwiatkowski, & Rasmussen, 1990) which included measures of speech phrasing, rate, stress, loudness, pitch, voice quality and resonance. Impressions of communication skills were rated by those subjects' primary caregivers on the Vineland Adaptive Behaviour Scales-Survey Form (Sparrow, Balla, & Cicchetti, 1984). Results revealed a strong relationship between scores on the Prosody-Voice Screening Profile and ratings of socialisation and communication skills on the Vineland scale, with subjects who showed more abnormal speech quality rated as less competent in socialising and communicating (Paul et al., 2005). Within a police interview such abnormalities in speech may violate expectations of normal speech quality or volume. For example, a quiet volume may indicate nervousness, a lack of intonation or flat affect may indicate a lack of emotion, and a loud volume may indicate anger or disrespect. Each of these violations have the potential to lead to more negative evaluations of an individual.

Eye contact. There are numerous studies that have employed methods such as experimental observation and eye-tracking tasks to demonstrate deficits in the maintenance of appropriate eye contact for ASD individuals within social settings. The majority of these studies have examined ASD children, although similar patterns have been found for ASD adults. Research has revealed abnormalities in eye contact for ASD individuals compared to typically developing individuals, exemplified either by fixating gaze too strongly (Dalton et al., 2005; Pelphrey et al., 2002; Spezio, Adolphs, Hurley, & Piven, 2007) or avoiding eye contact (Klin, Jones, Schultz, Volkmar, & Cohen, 2002; Neumann, Spezio, Piven, & Adolphs, 2006) during tasks requiring participants to interact with static faces or during real-life social interaction captured by video recording.

Within a police interview, strong fixation of gaze may be interpreted as an intimidation tactic and appear threatening, and an avoidance of gaze may indicate nervousness, guilt or disrespect (Brewer & Young, 2015). Each behaviour may lead to negatively violated expectancies of normative behaviour and shape the course of the interaction in a negative manner. Several studies have demonstrated experimentally that a lack of eye contact displayed by a witness during their testimony negatively influenced impressions of credibility compared to when eye contact was appropriately maintained (Hemsley & Doob, 1978; Neal & Brodsky, 2008). Eye contact avoidance increased customs officers' perceptions that an airline traveller was suspicious and warranted further search (Kraut & Poe, 1980). Additionally, Brooks, Church, and Fraser (2001) found that observers perceived an increased fixation of eye contact displayed by a model during a 60 second video recording as reflecting dominance, aggression, assertiveness and decisiveness, despite only the duration of the model's eye contact having been manipulated.

Emotional expression. Clinical observations and criteria highlight deficits in appropriate facial expressions (in particular, flat and inappropriate facial expression production) for ASD individuals. However, there is limited empirical research that has explicitly examined spontaneous naturalistic displays of emotion in the faces of ASD adults compared to non-ASD adults. Several studies have examined ASD adult and adolescent facial expression mimicry in response to an emotional stimulus, with the majority of research highlighting deficits in the mimicry of emotional facial expression for ASD individuals (McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006; Stel, van den Heuvel, & Smeets, 2008). One study by McIntosh et al. (2006) presented participants with pictures of happy and sad expressions whilst monitoring their facial movement responses through electromyography (EMG). They found atypical facial expressions in ASD adolescents and adults compared to typically developing individuals when spontaneously mimicking the

emotions of these pictures (i.e., through initial reactions to the pictures). However, there were no differences between groups for facial expression congruence when participants were explicitly instructed to mimic the emotion they viewed.

A study by Macdonald et al. (1989) examined emotional facial expression in response to written emotional stories and explicit words describing emotions, investigating whether high-functioning ASD adults and age and IQ-matched typically developed adults differed in the recognition and production of facial expressions. Participants were photographed while producing facial expressions of emotion in response to short stories and explicit emotion labels. When experimentally rated by researchers who were blind to diagnosis, the photographs of ASD participants' facial expressions were given lower ratings of emotional quality compared to the typical participants' expressions. Furthermore, these emotions were often labelled by judges as incongruent with the emotional context. These findings demonstrated ASD participants' reduced ability to produce appropriate facial affect and heightened observers' perceptions of violated expectancies of normative emotions.

Macdonald et al. (1989) also recorded subjects' vocal expressions of emotion. Judges then rated the 'oddity' of each individual's expression. Results indicated that ASD subjects' voices were rated as sadder relative to the controls which were rated as neutral or happy. These ratings were likely due to irregular or flat prosody (i.e., speech rate and tone) for ASD individuals. Furthermore, the judges rated vocal expressions of subjects with ASD as odder relative to controls, that is, violating their expectancies of normative vocal expression (Macdonald et al., 1989). Overall, results indicated that ASD subjects were impaired in their ability to understand and generate emotional expressions.

Such deficits in emotional expression may lead to a violation of behavioural expectancies held by an interaction partner when the topic of the interaction is believed to warrant an emotional response. For example, there are several studies that have uncovered

the ‘emotional victim effect’ within mock-rape cases (Ask & Landström, 2010). In twenty of these studies, as outlined in a meta-analysis by Nitschke, McKimmie, and Vanman (2019), it was consistently found that a more emotionally upset demeanour displayed by a rape victim led to impressions of greater victim credibility compared to victims who appeared neutral or flat in their emotion. Those results did not differ when credibility ratings were made by potential jurors (laypeople), police officers or judges, and there was no difference in the impact that emotion had upon credibility ratings for those who read a written transcript or viewed video footage of the victim. Two studies in particular demonstrated that the ‘emotional victim effect’ was underpinned by how the emotion confirmed or violated observer expectancies. Ask and Landström (2010) found that the effect of emotional victim behaviour on police trainees’ judgement of whether rape had occurred was mediated by police expectations of appropriate emotion that should be shown by the victim. Similarly, Hackett, Day, and Mohr (2008) found that students who expected a rape victim to behave emotionally perceived the victim as more credible when they displayed emotional behaviour compared to neutral behaviour, whilst there was no emotional victim effect for those students who had no expectations of emotion that should be displayed by the victim.

Body movement. Considered to be a core deficit for an ASD diagnosis according to the DSM-5, the display of restricted and repetitive behaviours remains largely unstudied in ASD adults. These behaviours are variously defined across the literature as referring to movements that may be repetitive with or without a pattern, rhythmic and without a function, appear abnormal or inappropriate, do not cause physical harm, characteristically distracting, and continuously repeated for a period of time over several occasions (Melo et al., 2019). In one study by Gritti et al. (2003), ASD children displayed a high degree of idiosyncratic stereotypical behaviour which included clapping, hand flapping, banging and swinging

objects, and body rocking. These behaviours were often displayed in response to triggers (e.g., parent separation, blockage of a goal), but were also present with no trigger.

In a meta-analytic review of 37 studies concerning repetitive behaviour in ASD, stereotypical repetitive behaviour was reported as present in 21.9% to 97.5% of ASD diagnoses, with a median of 51.8% (Melo et al., 2019). Factors that were associated with an increased presence of these behaviours included lower non-verbal IQ, a greater ASD severity, and a younger age. Although younger age is reportedly associated with increased repetitive behaviour (Militerni, Bravaccio, Falco, Fico, & Palermo, 2002), the lack of studies with ASD adults and lack of longitudinal research does not allow for this association to be tested. In one study with 34 ASD adults, Chowdhury, Benson, and Hillier (2010) reported that severity of stereotyped repetitive behaviours decreased over time for ASD individuals when retrospectively compared to behaviour identified when the ASD individual was aged four to five. These results were based on interview (conducted with primary caregiver) and behavioural rating responses, which may have been influenced by recall bias due to the retrospective nature of the study. Although the severity of these repetitive behaviours decreased, all ASD participants who improved or were asymptomatic on some behavioural measures still displayed impaired stereotypical behaviour. Thus, it is possible that these behaviours do not completely disappear in adulthood (Ballaban-Gil, Rapin, Tuchman, & Shinnar, 1996).

In addition to increased repetitive behaviour, there is evidence for deficits in the appropriate display of gestures by ASD individuals. In one study comparing 15 ASD and 15 IQ and age matched typically developing adolescents, when telling a story, there were a comparable number of gestures displayed by both groups (de Marchena & Eigsti, 2010). However, the gestures displayed by the ASD adolescents were more poorly synchronised with the content of the story telling, suggesting deficits in coordinating verbal and non-verbal

communication for this group. The stories provided by the ASD group were in turn rated by observers as harder to follow and less engaging, which may be based on this lack of appropriate synchronisation as the details and gestures provided by both groups did not differ significantly. It may be that this lack of synchronisation appeared 'odd' and violated those expectations of appropriate integration of verbal and non-verbal story telling.

During a police interview, repetitive behaviour may indicate a nervousness or a distraction from the subject being discussed (Strömwall & Granhag, 2003). Nervous behaviour may violate the expectation held by the officer that the individual they are interviewing is being truthful, and thus may indicate that they are withholding information or being deceptive in their responses. In the only published study to date that has assessed observer evaluations of repetitive movement displayed by an ASD individual when controlling for speech, Coon and Rapp (2019) found more negative impressions were formed regarding an ASD child when greater repetitive movement was displayed. Participants (undergraduate students) viewed four separate videos, without sound, of the child displaying different degrees of repetitive behaviour and then rated their impressions of the child. Participants perceived the child as more normal and compliant in the control condition (i.e., when no repetitive behaviour was displayed) compared to when 17% or more of the video contained displays of repetitive behaviour. These results may indicate that those repetitive behaviours are appearing abnormal and thus violating observer expectations of appropriate or 'normal' behaviour.

In sum, people hold certain expectations of behaviour that is appropriate to display during an interaction. There are specific expectations held regarding behaviour that is truthful, and people will rely upon behaviour that violates those expectations as cues that an individual is being deceptive (e.g., they are lying or withholding information). These expectations and violating behavioural cues, however, are not reliable in determining actual

deception and thus may lead to prejudicial evaluations of an individual. Given ASD individuals display many of these cues, they may be the recipients of such evaluations.

CHAPTER 2

Study 1

The primary purpose of the first study in this program of research was to understand whether an actor displaying characteristic ASD behaviours in the context of a forensic investigation would be more likely to cause an 'interaction' to progress negatively, as a result of those behaviours causing a negative violation of participant expectancies, than when such behaviours were not displayed. Participants were instructed to take on the role of police interviewers and uncover whether the suspect, played by an actor displaying different degrees of ASD behaviours, was guilty or innocent after viewing the suspect interview video. Those ASD behaviours displayed by the actor included gaze aversion, abnormalities in vocal quality, flat and inconsistent emotional expression, and repetitive body movement. At any one of five opportunities across the interview participants were given the option to make a final decision regarding the suspect's guilt or innocence when they were confident in their decision. The manner in which the interaction progressed, either positively or negatively, was examined through the emotional reaction of the participant (measured through self-report of negative affect), the changes in impressions of the suspect over the interview, and the number of opportunities to enter a verdict (out of five) that had elapsed before participants decided to enter that verdict as final. The present study allowed for an examination of whether ASD behaviour caused impressions to become increasingly negative over the course of an interview, or whether recovery from negative impressions were possible given the extended period of exposure.

The study aimed to address several gaps within the literature. First, the study examined how visual representation of those ASD behaviours were interpreted when displayed by a suspect rather than a witness. The only study to date assessing the visual representation of ASD adults in a mock-juror context presented those individuals as

witnesses (Maras, Crane, et al., 2019). It is possible that informing participants that the individual was a potential suspect, rather than a witness, would prime them to frame evaluations of the suspect with greater suspicion, perhaps leading to the ASD behaviours carrying more weight in decision making than if displayed by a witness.

Secondly, the study aimed to examine the effect that ASD behaviour had over a longer period of time, and when displayed within the context of an interview involving social interaction. Maras, Crane, et al. (2019) examined evaluations of ASD and non-ASD witnesses during six-minute videos of those witnesses freely recalling an event. Increased pressure due to the social element of an interview may give greater rise to the opportunity for certain behavioural expectations to be formed by observers. Probing questions asked by an interviewer may lead to further opportunity for expectations to be violated by ASD behaviour by providing context for the basis of those expectations, as opposed to unstructured freely recalled information.

The decision to use an actor instructed to display ASD behaviours instead of an ASD individual in this study was to allow for precise control of the behaviours being displayed and to control for the details relayed. Previous studies using ASD individuals have been unable to control for speech and the number or quality of details relayed within their testimony (Crane et al., 2018; Maras, Crane, et al., 2019). These factors have the potential to impact decision making and confound the ability to examine the effect of an ASD behavioural display, particularly given the association between an ASD diagnosis and poorer expression of speech and differences in memory quality (Soper, Zilberfayen, & Horton, 2018). Of course, given the possibility of deficits in speech and memory associated with ASD, and the potential for testimony detail to impact evaluations of an individual (Bell & Loftus, 1989), the present study may not be as ecologically valid as assessing impressions of a suspect who has an ASD

diagnosis. However, it was a first step in isolating the impact that a behavioural display associated with ASD may have upon criminal decision making.

Based on an analysis of the literature of expected behaviours in ASD adults, the actor was informed and trained on which behaviours to display. The actor either displayed a low or high intensity of ASD behaviours (low and high negative violations), or none of those ASD behaviours (expected behaviour), with those ASD behaviour conditions including a combination of deficits in verbal quality, emotional expression, eye contact, and repetitive body movements. These interview videos were assessed by clinicians with expertise in working with ASD individuals, with the actor's ASD behaviour confirmed to be representative of an ASD diagnosis.

Hypotheses

Following expectancy violations theory, I predicted that participants who viewed more intense displays of characteristic ASD behaviour by the suspect (i.e., high intensity ASD behaviour compared to low intensity ASD behaviour, and in turn, non-ASD behaviour), would more likely have their expectations of normative behaviour violated (i.e., lower mean impressions of the suspect's behavioural appropriateness), in turn leading to greater arousal of negative affect (i.e., higher mean feelings of negative affect) and more negative impressions of the suspect (i.e., higher mean impressions of suspiciousness, hostility and disrespect and likelihood of guilt, and lower mean credibility), and culminating in a higher percentage of guilty verdicts. That is, violated expectations and impressions of the suspect were hypothesised to mediate a negative effect of ASD behaviour on verdicts. Additionally, I predicted that, as the interview progressed and provided further opportunities for expectancy violation, mean impression ratings would become increasingly negative for those viewing the suspect display ASD behaviour.

Clearly, many characteristics of suspect presentation other than the nonverbal behaviours would shape the course of an interaction. The suspect's memory report is one obvious candidate. Accordingly, participants also provided subjective impressions of how detailed, consistent and confident the suspect's memory report was. These memory characteristics are known to influence participants' credibility judgments of witnesses, with those perceived as more detailed, consistent and confident in their testimony perceived as more credible (Bell & Loftus, 1989; Leippe, Manion, & Romanczyk, 1992; Tenney, Small, Kondrad, Jaswal, & Spellman, 2011). I expected mean ratings of the memory report quality would be negatively correlated with ratings of suspiciousness, hostility and disrespect, likely guilt, and positively correlated with credibility. However, the presence of ASD behaviours was not expected to influence ratings of memory report, given that the script was maintained across conditions and there was no difference in the details relayed by the suspect.

Method

Participants

Two hundred and fifteen participants (153 female) were recruited from the Flinders University undergraduate population and received course credit or $20 for their participation. Participant ages ranged from 17 to 65 (M = 22.81, SD = 7.57). Although the present study involved new methodology, effect sizes from previous studies that have found an influence of demeanour on negative participant impressions were moderate to large, d = .31 to .61 (Ask & Landström, 2010; Hackett et al., 2008), supporting the potential of obtaining moderate effects for the present study (Cohen, 1992). A power analysis using the G*Power 3 program (Faul, Erdfelder, Lang, & Buchner, 2007) indicated a sample size of approximately 150 participants would be required to detect moderate effects.

Design

A 3 (behaviour: non-ASD (n = 72), low intensity ASD (n = 71), high intensity ASD (n = 72)) between-subjects design was applied, with participants randomised to view the suspect displaying one of the three behaviour categories. Dependent measures included verdict, the time taken to reach a final verdict of suspect involvement in the crime, confidence in verdict, ratings of participant negative mood state, and ratings of different impressions participants had formed regarding the suspect's likely guilt, suspiciousness, credibility, memory report, hostility, disrespect and behavioural appropriateness. All ratings were repeated five times approximately every four minutes over the course of the 22-minute interview, except for the behavioural appropriateness rating which was made only at the end. Participants were blind to their condition and the study aims. There was no indication that ASD was involved or being researched within the study.

Development of the Interview Materials

In this section I describe the development of the mock-police interview with a suspect to be shown to participants for the study materials. It includes a detailed description of the operationalisation of the ASD behaviours in each interview condition, the rationale for the crime case selected, and an empirical assessment of whether the behaviours displayed by the actor were compatible with behaviourally based classifications provided by clinicians who have experience with ASD clients.

Operationalisation of ASD behaviours. A male actor, who self-selected to volunteer, attended the laboratory to create the interview stimuli over four sessions, with each session lasting approximately 3-hours. Before the filming sessions, the actor was given a script including words and behaviours to memorise and perform in response to questioning about the crime during the interview (Appendix A). The interview included 113 questions/statements made by a mock-police interviewer regarding the suspect's potential

involvement in several home robberies. The operationalisation of behaviours was informed by the literature on the behavioural characteristics of ASD adults. Within the interview, the behaviours manipulated included:

(a) emotional expression which was enacted through facial and verbal expressions of emotion compatible with the context of what was being discussed

(b) eye contact enacted via the duration of an interviewee's maintenance of face-gaze with the interviewer (eyes are looking in the direction of the interviewer) with no shifts in gaze

(c) repetitive behaviours which were defined as any motor movement that was not required to meet the demands of the interview and was engaged in more than once within a short duration

(d) verbal quality enacted through the volume, pitch, speed and stress on words within the speech.

The actor was interviewed and recorded three separate times, each time displaying behaviours for the different condition. These conditions (and duration of the interview in each condition) included high intensity ASD behaviours (22 minutes and 8 seconds), low intensity ASD behaviours (22 minutes and 33 seconds), and none of those ASD behaviours (22 minutes and 26 seconds). The interviews were video recorded on a Canon PowerShot S95 digital camera with the camera set up to capture the full body of the target and taken from a point of view slightly to the right of the interviewer, without including the interviewer in the frame. As the interviewer could not be seen within the frame, the audio of the interview questions was pre-recorded with a separate male actor so that the voice and pace of these questions remained the same across conditions. Thus, there was no interviewer in the room, and instead I played the audio of the questions and sat to the left of the camera so that the actor had a mark to direct his eye contact.

For the low and high intensity versions of the interview, the actor was given instructions to display different degrees of ASD-related behaviours, such as abnormalities in eye contact (e.g., looking away from the interviewer or staring intently for an irregular amount of time); inappropriate emotional expression (e.g., smiling when the interviewer was discussing the potential for harm that occurred during the crime, frowning when neutral information was discussed, appearing flat and inexpressive); repetitive movements (e.g., legs or hands bouncing over a period of time, continuous blinking for a short period of time); and deficits in verbal quality (e.g., speaking loudly, softly or quickly compared to the baseline volume and pace of speech). The high intensity version of the interview included a greater number and more exaggerated version of those behaviours compared to the low intensity version. The non-ASD version of the interview involved none of those behaviours, with the actor maintaining eye contact with the interviewer, producing situation-appropriate emotional expression depending on the context, not making any repetitive movements, and keeping their voice at an even volume and pace and using appropriate intonation where necessary.

Rationale for the crime case used in the interview. When deciding the type of crime that the suspect (interviewee) allegedly committed, and the information provided regarding that crime, it was important to take into account how this may influence participant decision making. Although research has revealed mixed results, the majority of studies that have examined crime severity and the influence of demeanour have reported that demeanour exerted a significant influence upon decision making regardless of crime seriousness and type (Engel et al., 2000). For the present study, the crime of multiple armed home robbery was selected. This involved the potential of harm to those residing in the houses that were robbed, which increased the seriousness of the crime, but with none of those individuals becoming seriously injured at the hands of the suspect. This level of crime seriousness was selected with the aim to increase participants' involvement in investigating the crime, as opposed to a

more trivial crime that may be interpreted as less important for investigation (e.g., stealing milk from a supermarket).

For the present study, given the aim was to investigate whether the ASD behaviours exert any influence over observer perceptions and decision making, the information regarding the crime needed to allow for this potential effect to be investigated. The use of the suspect's demeanour in informing verdict decisions may vary depending on the strength of the information connecting the suspect to the crime. For example, if it was clearly established within the interview that the suspect was involved in the crime, it may become unnecessary to rely upon the demeanour to inform decision making. If, however, there were some ambiguity within the information presented, demeanour may become an important factor upon which to base decision making. Therefore, the suspect's involvement in the crime, through the detail presented within the interview, was made ambiguous in that there was no clear evidence whether he may or may not have been involved. The interview began with the mock-police interviewer reading out the suspect's rights. This then continued to questions regarding the suspect's connection to the ringleader of the robberies who had already been arrested, his knowledge of the crimes that had been committed, his living situation, travel dates and employment status. The interviewer implied that there were multiple others reported to have been working with the ringleader to commit the robberies. The suspect's responses to each of these questions involved information that could have linked him to involvement in the crime (e.g., he lived with the arrested ringleader's brother, knew the ringleader (although only as an acquaintance) and had seen him recently at a party, and had enough money for extensive travel from a moderate income (as implied by his employment status)), but there was no clear indication through his responses that he was, without doubt, involved in the crime.

Empirical clinician assessment of ASD behaviour displayed by the actor. It was important to demonstrate that the behaviours of the suspect manipulated during the interview were consistent with those expected to be associated with an ASD diagnosis. To demonstrate this, clinicians with extensive experience with ASD clients were exposed to the manipulated behaviours to determine if they would classify them as characteristic of ASD. Thirteen clinicians, made up of practising clinical psychologists and speech pathologists with substantial experience with ASD clients, were recruited. To avoid priming clinicians that the study was about ASD, they were led to believe that they were selected along with a wide range of other clinicians who had expertise with clients with different disorders. They were told that a large number of police interviews had been recorded with interviewees who may display behaviours consistent with various psychological disorders, for the purpose of examining observer impressions of those different disorders. They were told that the interview they viewed would be randomly selected from this larger collection and that the interviewee may display behaviours consistent with one of the following disorders (to which they would be blind): anxiety, ASD, bipolar, mood, obsessive-compulsive, personality, post-traumatic stress, schizophrenia, or may have no diagnosis of a disorder. Clinicians completed the study online, viewing five minutes of the suspect interview, and were randomised to view the suspect display either high intensity ASD (n = 8) or non-ASD behaviours (n = 5). They were then asked to rate the likelihood that the suspect had a diagnosis of those eight different disorders listed, or no disorder diagnosis, on a 6-point scale from highly unlikely (1) to highly likely (6), and to indicate their confidence in that likelihood rating for each disorder from 0 to 100% confidence. They were also asked to rate on a 5-point scale how appropriate the behaviours of the suspect were, in line with their own expectations of appropriate interview behaviour of a neurotypical individual. This included ratings of eye contact, verbal quality, emotional expression and body movement appropriateness. In addition to those behaviours,

there were several foil items included within this scale to measure the frequency of behaviours that may be associated with other disorders. This was to ensure, similarly to the disorder ratings, that clinicians were not led to focus only on behaviours associated with a diagnosis of ASD. Examples of some of the other items included rating displays of anxiety, sadness, hypervigilance and distraction of attention (see Appendix B for the materials provided to clinicians). Analysis of the behavioural appropriateness ratings were based on a mean score of responses to the ASD behaviour items only.

Table 1

Means (standard deviation) and t-test results comparing ratings made by clinicians who viewed ASD or non-ASD behaviour

	Interview type			
Ratings	ASD	Non-ASD	Inferential Statistics	Cohen's *d* [95% CI]
ASD diagnosis	5.13 (0.64)	2.00 (0.71)	$t(11) = 8.23, p < .001$	4.70 [2.35, 6.39]
% Confidence in ASD diagnosis	78.75 (14.33)	69.80 (25.20)	$t(11) = 0.83, p = .427$	0.47 [-0.69, 1.57]
No diagnosis	2.13 (1.55)	5.20 (0.84)	$t(11) = 4.03, p = .002$	2.30 [0.75, 3.52]
% Confidence in no diagnosis	66.25 (32.49)	68.40 (29.03)	$t(11) = 0.12, p = .906$	0.07 [-1.05, 1.18]
Appropriateness	2.31 (0.42)	4.25 (0.50)	$t(11) = 7.57, p < .001$	4.30 [2.10, 5.90]

Results from the clinician assessment provided support for a successful manipulation of ASD characteristics within the suspect interview. Specifically, it was found that clinicians who viewed the ASD behaviours ($n = 8$) were more likely to believe that the suspect had a diagnosis of ASD compared to clinicians who viewed the non-ASD behaviours ($n = 5$); see Table 1 for results. Additionally, clinicians who viewed the non-ASD behaviours were more likely to believe the suspect had no diagnosis of any disorder compared to clinicians who

viewed the ASD behaviours. There was no difference in confidence ratings for decision making between interview conditions, with moderate confidence in each decision. Furthermore, clinicians who viewed the ASD behaviours rated the suspect as less behaviourally appropriate compared to clinicians who viewed the non-ASD behaviours.

In comparing the likelihood of an ASD diagnosis and no diagnosis within each interview condition separately (i.e., for those who viewed ASD behaviour only, this compared the mean likelihood rating of an ASD diagnosis compared to no diagnosis, and the same comparison for those who viewed only non-ASD behaviour), a paired samples *t*-test revealed that for those who viewed the ASD behaviours, they were more likely to believe the suspect had an ASD diagnosis than no diagnosis, $t(7) = 4.58$, $p = .003$, $d = 2.53$, 95% CI [1.11, 3.67], and there was no difference between their confidence in either of these diagnosis decisions, $t(7) = 1.22$, $p = .263$, $d = 0.50$, 95% CI [-0.52, 1.46]. Additionally, for those who viewed the non-ASD behaviours, they were more likely to believe the suspect had no diagnosis compared to an ASD diagnosis, $t(4) = 5.49$, $p = .005$, $d = 4.11$, 95% CI = [1.67, 5.76], with no difference in confidence between either decision, $t(4) = 0.41$, $p = .706$, $d = 0.05$, 95% CI [-1.29, 1.19].

Table 2 displays clinician impressions of the likelihood that other disorders were present. For clinicians who viewed ASD behaviour, they were likely to also believe that the suspect may have a diagnosis of anxiety disorder, and to a lesser extent a mood disorder. This may have been due to those behaviours (e.g., repetitive movement or inability to maintain eye contact) aligning with symptoms of anxiety. Research has further shown a connection between higher rates of anxiety and mood problems for ASD compared to non-ASD individuals (Bellini, 2004; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000). For clinicians who viewed the non-ASD behaviour, there was low likelihood of any other disorder being present in the suspect. Thus, the manipulation of ASD and neurotypical behaviours within the

recorded interview was considered successful based upon the interpretations of experienced clinicians.

Table 2

Mean likelihood of disorder diagnosis (and standard deviation), and mean percentage of confidence in decision (and standard deviation) for clinicians who viewed ASD or non-ASD behaviours

	Interview type			
	ASD		Non-ASD	
Disorder	Likelihood	Confidence	Likelihood	Confidence
Anxiety	4.38 (1.19)	62.50% (19.09)	1.80 (1.30)	76.00% (25.10)
ASD	5.13 (0.64)	78.75% (14.33)	2.00 (0.71)	69.80% (25.20)
Bipolar	1.75 (0.89)	60.00% (29.88)	1.60 (0.89)	60.00% (33.91)
Mood	3.25 (1.17)	48.75% (24.17)	2.00 (1.00)	59.00% (30.08)
OCD	2.63 (0.92)	57.50% (29.28)	2.00 (1.23)	74.00% (23.02)
Personality	2.88 (0.84)	48.13% (26.45)	1.80 (1.30)	60.00% (33.91)
PTSD	2.88 (1.13)	50.00% (27.12)	1.60 (0.89)	62.00% (32.71)
Schizophrenia	2.00 (1.31)	56.88% (33.80)	1.00 (0.00)	66.00% (29.67)
No Diagnosis	2.13 (1.55)	66.25% (32.49)	5.20 (0.84)	68.40% (29.03)

Materials for the Measurement of Participant Evaluations

In this section I describe the development of different scales of measurement (or the selection of measures from previous research), intended to assess participant evaluations of the suspect when they watched the aforementioned suspect interview. These scales were designed to measure participant feelings of negative affect in response to the interview, as well as participant impressions regarding the suspect's level of suspiciousness, credibility, quality of memory, hostility, disrespect, guilt and behavioural appropriateness. This section includes a description of the different measures, justification for selecting scale items, and reliability analysis for the coherence of selected items within each scale of measurement.

Negative arousal scale. A self-report scale of measurement was developed to assess negative mood in participants throughout the interview. Traditional mood measures, such as the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988), assess only those moods that involve a high level of arousal or activation (e.g., hostile, upset, distressed). However, more recent research has demonstrated negative affect to be better represented by both high-arousal/activation and low-arousal/activation emotions (Russell & Barrett, 1999; De Dreu, Baas, & Nijstad, 2008). This was important to take into account for the present study given that it involved watching an interview and may not cause the same high arousal changes as in real-life face-to-face interactions. Therefore, to better capture negative affect the scale included eight items, with four of those tapping into high-arousal negative emotions (i.e., tense, disgusted, irritated, anxious) and four items assessing low-arousal emotions (i.e., restless, unsympathetic, dissatisfied, discouraged). These items were based on the PANAS as well as scales from previous studies that have examined both high and low arousal for negative affect (De Dreu, Baas, & Nijstad, 2008; Kessler & Staudinger, 2009). Participants indicated the extent to which they were experiencing the different moods categories at that moment, rating these from 1 (strongly disagree) to 6 (strongly agree). Scores were calculated by adding the items together and averaging this score, with higher scores indicating a more negative mood state. Participants were administered these scales at the beginning of the session, during four approximately four-minute intervals throughout the interview, and again at the end of the interview. These scores were compared to determine whether there had been any increase in negative affect over the course of the interview between behaviour conditions.

Suspiciousness scale. The short three-item questionnaire for assessing the participants' impression of how suspicious the suspect appeared was adapted from the longer questionnaire used by Winkel (1991). Together the set of questions can be considered an

operationalisation of suspiciousness. The item-total correlations from the study by Winkel (1991) were significant, whilst Cronbach's alphas were all above .80. Each question was presented on a six-point Likert scale with participants asked to indicate the degree to which they believed the statement (from strongly disagree to strongly agree). The items used in the present study included:

1. The suspect made an impression of hiding the truth entirely or partly
2. The suspect had the look of a criminal about him or made an anxious, dangerous or emotionally unstable impression
3. You would consider the suspect capable of being involved in the crime

Credibility and memory report scales. Previous research has indicated that individuals infer the quality of witnesses' memory reports from the amount of detail they provide, and how consistent and confident they are in their statement (Leippe, Manion, & Romanczyk, 1992; Wells & Leippe, 1981). The rating of the memory report therefore encompassed three questions about the detail, consistency and confidence of the suspect's responses. The rating of credibility included five items regarding how honest, trustworthy, believable, reliable and sincere the suspect appeared. These items were adapted from the 20-item 'Witness Credibility Scale' developed by Brodsky, Griffin, and Cramer (2010) for judging witness credibility during a trial setting. Both scales had six-points and were rated by participants from strongly disagree to strongly agree for each statement.

Hostility and disrespect scale. The four-item questionnaire was formulated based on past research regarding what makes individuals feel disrespected and how they interpret hostile behaviours (Miller, 2001). Each question was presented on a six-point Likert scale which asked participants to indicate the degree to which they believed the statement (from strongly disagree to strongly agree). It was possible that some participants would believe the suspect did not show any signs of disrespect during the interview. Therefore, for the fourth

item participants were additionally provided the option to select ‘not applicable’ given that it would be unnecessary for those who did not perceive any disrespect to have occurred to rate its intentionality. This response was coded as a value of 0, and within the analysis those who responded with 0 had their mean hostility and disrespect score based on an average of only the first three items from the scale rather than an average of all four scale items.

1. The suspect followed instructions and attempted to answer all questions
2. You believe the suspect disrespected the interviewer’s authority
3. The suspect appeared to be angry
4. You believe any disrespect shown was intentional

Likelihood of guilt rating. As a separate continuous measure of guilt, a single question asked participants to rate the degree to which they believed the suspect was guilty of being involved in the crime. This was on a six-point Likert scale from strongly disagree to strongly agree. This measure was included with the hope of capturing more information regarding impressions of guilt as rated along a continuum rather than as a dichotomous ‘guilty’ or ‘innocent’ verdict.

Behavioural appropriateness scale. To assess whether the suspect behaviours negatively violated or confirmed expectancies, participants completed a measure of behavioural appropriateness at the end of the interview after answering all other questions. This was placed at the end to ensure participants were not primed to focus on these specific ASD behaviours during the interview. This included four items that assessed impressions of the appropriateness of the suspect’s eye contact, emotional expression, verbal quality and body movements in line with participants’ expectations of appropriate behaviour. Ratings were made on a five-point scale regarding the amount of time appropriate behaviour was displayed (from never to always), with higher scores indicating that the expectancies were

confirmed, and lower ratings indicating a more negative violation. Examples of the items are as follows:

1. The suspect maintained an appropriate level of eye contact with the interviewer
2. The suspect showed appropriate emotional expression given the nature of the situation they were describing
3. The suspect spoke with an appropriate tone of voice including pitch, volume and pace
4. The suspect displayed an appropriate level of body movement during the interview

In addition to these target items, there were three foil items presented to participants to control for a potential response bias. These items were based on factors that did not change across the interview conditions. These included:

5. The suspect spoke for an appropriate length of time when answering questions
6. The suspect used appropriate language in response to questioning
7. The suspect was dressed appropriately for an interview

Coherence of Individual Scales. The responses to each of these scales within Study 1 were examined to determine the reliability of creating a composite score for each scale based on averaging responses to the individual items within each scale.

Item-total correlations for the scales measuring the participant's impression of the suspect's behaviour, suspiciousness, hostility and disrespect, credibility, memory report, and participant's own negative affect were examined for ratings made at the first time point of the interview (see Table 3). As recent research suggests that Cronbach's alpha is a questionable index of internal consistency (Green & Yang, 2009; McNeish, 2018; Sijtsma, 2009), the alpha for each scale has not been reported. These data patterns suggested that it was appropriate to create composite behavioural appropriateness, negative affect, memory and credibility scores. The items for the scales measuring hostility and disrespect, and suspiciousness were closely related, with a correlation coefficient between each scale of

$r(215) = .569$, 95% CI [.471, .653], $p < .001$. Therefore, these measurement scales were combined to create a composite measure, labelled hereafter as just 'suspiciousness', based on the mean of the seven items.

Table 3

Item-total correlations for each scale

Scale	Items	Item-total correlations (*r*)
Appropriate behaviour		
	1. Eye contact	.660
	2. Emotional expression	.714
	3. Verbal quality	.690
	4. Body movement	.685
Suspiciousness		
	1. Hid the truth	.541
	2. Look of criminal/emotionally unstable	.592
	3. Capable of involvement	.635
Hostility and disrespect		
	1. Followed instructions (compliance)	.348
	2. Disrespected authority	.677
	3. Appeared angry	.494
	4. Intentionally disrespectful	.657
Negative affect		
	1. Tense	.647
	2. Disgusted	.601
	3. Irritated	.734
	4. Anxious	.695
	5. Restless	.688
	6. Unsympathetic	.503
	7. Dissatisfied	.730
	8. Discouraged	.730
Memory report		
	1. Detailed	.535
	2. Consistent	.570
	3. Confident	.667
Credibility		
	1. Honest	.753
	2. Trustworthy	.793
	3. Believable	.758
	4. Reliable	.781
	5. Sincere	.767

Procedure

Protocol for participants. Upon entering the lab, participants were taken to a room where they sat on their own and completed the study on a computer. An introduction on the computer informed that they would be acting as a police investigator for a crime. They were to watch a real-life interview with a suspect and told to imagine that they were the interviewer and their task was to determine whether the suspect was involved in the crime as quickly and accurately as possible. Participants were told they could decide at any point when they were asked that the suspect was guilty of involvement or innocent, but that if they made their decision about involvement before the end of the interview, they were still required to watch the remaining interview and continue to make the ratings. This was included to try to limit participants from rushing the study, and to gain a full range of ratings across the interview to compare how they progressed.

To attempt to have participants activate a similar motivation to real life officers, an incentive to arrive at the decision of involvement as quickly and accurately as possible was provided. Participants were instructed that if they accurately determined the suspect's involvement they would receive an additional amount of $2.50 on top of their advertised payment of $15 or 1.5 course credits. They were informed that they would also receive a greater amount of $5 if their decision was both accurate and made more quickly than the average time taken by participants to reach this decision. Given there was no correct answer, all participants received the bonus of $5 at the end of the study. Additionally, participants were told that the suspect may verbalise a piece of information during the interview that could either clearly reveal his involvement or innocence. They were told this could come at any time; however, there was never any clear information that was revealed during the interview. This was simply put in place to limit the number of participants who may rush to finish the study.

Participants began by filling out the negative affect scale to gain a baseline measure. They then watched the suspect interview, randomised to view one of the three behaviour categories (non-ASD, low intensity ASD, high intensity ASD). Approximately every four minutes (there were four opportunities for this during the 22-minute interview), participants made ratings on the negative affect scale, the suspiciousness, credibility, memory report, hostility and disrespect and likely guilt scales (see Appendix C). Participants were then asked to indicate whether they believed the suspect was guilty or innocent of involvement in the crime, and they rated their confidence in that decision as a percentage from 0-100%, with a higher percentage indicating greater verdict confidence. They were then given the opportunity to enter that verdict as their final decision, or they could choose not to make a decision yet. At the end of the interview, if they had not already, participants made a final verdict about involvement, and each of these scales were administered again along with the appropriateness of behaviour scale.

It may be argued that asking these questions throughout the interview was priming participants to focus on those aspects of their own feelings and the behaviours of the suspect, thus increasing the likelihood of a guilty verdict compared to when they may not be primed by these questions. However, on balance it seemed reasonable to ask such questions since it was likely a police investigator would, upon going into an interview, be focusing on various aspects of the suspect (e.g., their suspiciousness, hostility, credibility, memory report). Thus, these questions may activate a similar thought process for participants.

After all questions were completed, a short debriefing session was conducted, and participants were informed that the crime did not occur and that the individual used in the video stimulus was not a real suspect. Participants were given the full payment amount of $20 or course credit and informed about the deception in the incentive and why that occurred.

Dependent measures. The main dependent measures of interest were the verdict and verdict confidence at each time point and that entered as final, the rating of the likelihood of guilt, the changes over the course of the interview in negative affect, and impressions of the suspect's suspiciousness, hostility, disrespect and credibility. Additionally, the number of time points that passed before arriving at a final verdict was examined, along with impressions of the suspect's memory report.

Results

Violation of Behavioural Expectations

To examine whether ASD behaviour was more likely to violate expectations of normative behaviour, a one-way ANOVA tested the effect of the behaviour condition (non-ASD, low intensity ASD, high intensity ASD) on ratings of appropriateness of suspect behaviour revealed a significant effect of behaviour condition, $F(2, 212) = 35.78$, $p < .001$, $\eta^2 = .252$, 95% CI [.154, .340]. See Table 4 for the means comparing the differences for total appropriateness ratings. Tukey post-hoc tests revealed that higher ratings of appropriate behaviour were given by those who viewed the non-ASD behaviours than those who viewed low intensity behaviours, and high intensity behaviours. Additionally, significantly higher ratings of appropriateness were given by those who viewed low intensity compared to high intensity behaviours. These robust patterns were consistent with the aim of the manipulation, demonstrating that the ASD behaviours violated observer expectations of appropriate behaviour, and that this violation was a function of the intensity of the ASD behaviour.

To examine how the individual behaviours violated expectations, each individual item from this appropriate behaviour scale was analysed in a one-way MANOVA between groups (see Table 4). This revealed a significant effect of behaviour for eye contact, $F(2, 212) = 41.30$, $p < .001$, $\eta^2 = .280$, 95% CI [.180, .367]; emotional expression, $F(2, 212) = 22.11$, $p < .001$, $\eta^2 = .173$, 95% CI [.086, .258]; verbal quality, $F(2, 212) = 14.51$, $p < .001$, $\eta^2 = .120$,

95% CI [.046, .200]; and body movement, $F(2, 212) = 19.52$, $p < .001$, $\eta^2 = .156$, 95% CI [.072, .239]. Post-hoc testing revealed the pattern of results was in the predicted direction between behaviour conditions for impressions of each individual behaviour (i.e., more appropriate impressions of non-ASD compared to low and high intensity ASD behaviour). However, there was no significant difference in the rating of emotional or verbal appropriateness between those who viewed low and high intensity ASD behaviour. The mean appropriateness rating, based on an average of responses to each individual behaviour item, was used within all further analyses with this showing significant difference between all groups.

Table 4

Mean (and standard deviation) appropriateness ratings, and Cohen's d effect size [and 95% confidence intervals] comparing those means between behaviour conditions

			Behaviour	
Item	Behaviour	M (SD)	2	3
Eye contact				
	1. Non-ASD	3.74 (0.87)	0.97 [0.62, 1.31]***	1.54 [1.16, 1.90]***
	2. Low intensity	2.90 (0.86)		0.45 [0.11, 0.78]*
	3. High intensity	2.56 (0.65)		
Emotion				
	1. Non-ASD	3.24 (0.91)	0.68 [0.34, 1.01]***	1.18 [0.82, 1.53]***
	2. Low intensity	2.56 (1.09)		0.38 [0.05, 0.71]
	3. High intensity	2.18 (0.88)		
Verbal quality				
	1. Non-ASD	3.71 (0.93)	0.68 [0.33, 1.01]***	0.88 [0.54, 1.22]***
	2. Low intensity	3.03 (1.08)		0.15 [-0.18, 0.48]
	3. High intensity	2.88 (0.95)		
Body movement				
	1. Non-ASD	3.51 (1.02)	0.57 [0.23, 0.90]**	1.13 [0.78, 1.48]***
	2. Low intensity	2.89 (1.17)		0.42 [0.09, 0.75]
	3. High intensity	2.47 (0.80)		
Total				
	1. Non-ASD	3.55 (0.72)	0.88 [0.53, 1.22]***	1.53 [1.15, 1.90]***
	2. Low intensity	2.85 (0.87)		0.44 [0.10, 0.77]*
	3. High intensity	2.52 (0.62)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Changes in Suspect Impressions and Negative Affect across the Interview between Conditions

To examine whether displays of ASD behaviour led to more negative impressions of the suspect, a mixed MANOVA was carried out to assess whether the behaviour condition participants viewed influenced their impressions of the suspect's credibility, suspiciousness, likely guilt, memory report, and their feelings of negative affect, and to look at how these impressions may have changed over the course of the five time points of the interview. The multivariate tests showed a significant effect of behaviour, $F(10, 416) = 5.98$, $p < .001$, Wilks' $\Lambda = .764$, and time, $F(20, 193) = 14.45$, $p < .001$, Wilks' $\Lambda = .400$, and interaction between the two variables, $F(40, 386) = 3.15$, $p < .001$, Wilks' $\Lambda = .568$.

Main effect of behaviour condition. For overall means averaged across all time points for each of the ratings, the univariate tests showed there was a significant effect of behaviour condition for ratings of credibility, $F(2, 212) = 4.86$, $p = .009$, $\eta^2 = .043$, 95% CI [.003, .083]; suspiciousness, $F(2, 212) = 19.37$, $p < .001$, $\eta^2 = .143$, 95% CI [.066, .220]; and likely guilt, $F(2, 212) = 6.00$, $p = .003$, $\eta^2 = .052$, 95% CI [.007, .114]. See Table 5 and Figure 1 for those results. Tukey post-hoc tests revealed that, compared to participants who viewed non-ASD behaviour, those who viewed high intensity behaviours rated the suspect as more suspicious, less credible and more likely guilty. Additionally, post-hoc testing revealed that low intensity behaviours were rated as less suspicious than high intensity behaviours, but with no difference in suspiciousness between low intensity and non-ASD behaviours. Furthermore, there was no difference between low intensity behaviour and non-ASD or high intensity for ratings of credibility or likely guilt.

There was no significant effect of behaviour condition for ratings of memory report averaged across the five time points, $F(2, 212) = 0.25$, $p = .781$, $\eta^2 = .002$, 95% CI [.000, .022]. This result, however, was expected as the script was the same in each behaviour

condition. Additionally, there was no significant effect of behaviour condition for ratings of negative affect, $F(2, 212) = 1.00, p = .369, \eta^2 = .009$, 95% CI [.000, .044], which was in contrast to the hypothesis that viewing the more intense ASD behaviour conditions would elicit greater negative affect[1].

Table 5

Means (standard deviation) and Cohen's d effect sizes [95% confidence intervals] comparing the difference between each behaviour condition for all measures

			Behaviour	
Measure	Behaviour	*M (SD)*	2	3
Credibility				
	1. Non-ASD	3.61 (0.96)	0.17 [-0.16, 0.50]	0.53 [0.19, 0.57]**
	2. Low intensity	3.44 (1.01)		0.33 [0.00, 0.65]
	3. High intensity	3.14 (0.82)		
Suspiciousness				
	1. Non-ASD	2.82 (0.82)	0.27 [-0.07, 0.59]	1.06 [0.71, 1.40]***
	2. Low intensity	3.04 (0.84)		0.75 [0.40, 1.08]***
	3. High intensity	3.59 (0.62)		
Likely guilt				
	1. Non-ASD	3.37 (1.02)	0.20 [-0.13, 0.53]	0.62 [0.28, 0.95]**
	2. Low intensity	3.59 (1.20)		0.36 [0.03, 0.69]
	3. High intensity	3.98 (0.94)		
Memory report				
	1. Non-ASD	3.83 (0.92)	0.03 [-0.30, 0.36]	0.11 [-0.21, 0.44]
	2. Low intensity	3.80 (1.07)		0.07 [-0.26, 0.40]
	3. High intensity	3.73 (0.83)		
Negative affect				
	1. Non-ASD	2.04 (0.97)	0.09 [-0.24, 0.42]	0.15 [-0.18, 0.47]
	2. Low intensity	1.95 (0.96)		0.24 [-0.09, 0.56]
	3. High intensity	2.19 (1.07)		

Note. * p <.05, ** p <.01, *** p <.001

[1] Given the nature of the task (participants passively watching the suspect interview), it was possible that only a relatively low level of arousal of negative affect may have been activated by the interview. Therefore, a separate *t*-test analysis for the effect of behaviour upon negative affect was carried out, using only the averaged low arousal items that made up the negative affect score (i.e., restless, unsympathetic, dissatisfied and discouraged). This, however, did not show any effect of behaviour for low arousal negative affect between non-ASD (M = 2.03, SD = 1.03), low intensity ASD (M = 1.99, SD = 1.04) and high intensity ASD behaviour (M = 2.24, SD = 1.12), $F(2, 212) = 1.15, p = .320, \eta^2 = .011$, 95% CI [.000, .047].

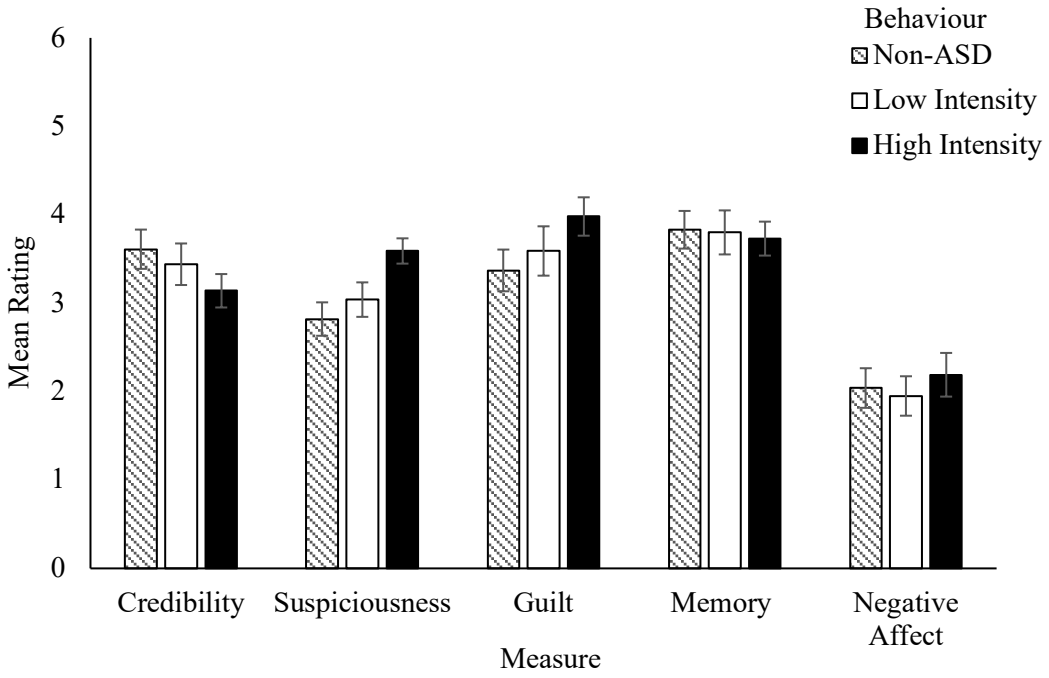


Figure 1. Column graph for the mean rating of each impression measure (with error bars that show 95% confidence intervals) made by participants within each behaviour condition.

To assess whether ASD behaviour led to a greater increase in feelings of negative affect from baseline, a series of separate paired samples *t*-tests compared the difference between the baseline measurement of negative affect (taken before viewing the interview) and the mean rating of negative affect during the interview, for each behaviour condition. There was no significant change in negative affect from baseline ($M = 1.97$, $SD = 0.79$) to during the interview ($M = 2.04$, $SD = 0.97$) for those who viewed non-ASD behaviour, $t(71) = 0.85$, $p = .397$, $d = 0.08$, 95% CI [-0.25, 0.41], or for those who viewed low intensity behaviour from baseline ($M = 1.94$, $SD = 0.83$) to the interview, ($M = 1.95$, $SD = 0.96$), $t(70) = 0.18$, $p = .862$, $d = 0.01$, 95% CI [-0.32, 0.34]. There was, however, an increase in negative affect for those who viewed high intensity ASD behaviour from baseline ($M = 1.93$, $SD = 0.80$) to during the interview ($M = 2.19$, $SD = 1.07$), $t(71) = 3.07$, $p = .003$, $d = 0.28$ [-0.06, 0.60]. Thus, although there was no difference in negative affect across each behaviour condition once the interview began, there was a small but significant increase in negative

affect from before the interview began for only those who viewed high intensity ASD behaviour.

Main effect of time point. The main effect of time point was analysed to assess how impressions of the suspect, regardless of behaviour, changed over the course of the interview (see Table 6). The univariate tests showed there was a significant main effect of the time point during the interview when the ratings were made, averaged across each behaviour condition, for credibility $F(3.04, 643.64) = 3.54$, $p = .014$, $\eta^2 = .015$, 95% CI [.001, .029], suspiciousness $F(3.95, 624.95) = 36.84$, $p < .001$, $\eta^2 = .143$, 95% CI [.100, .186], likely guilt, $F(3.02, 640.52) = 14.18$, $p < .001$, $\eta^2 = .061$, 95% CI [.031, .091], memory report $F(3.14, 666.30) = 10.21$, $p < .001$, $\eta^2 = .043$, 95% CI [.018, .068], and negative affect, $F(2.18, 461.99) = 15.49$, $p < .001$, $\eta^2 = .068$, 95% CI [.036, .100]. Looking at the patterns that occurred across the five time points, there were fluctuations with increased and decreased ratings for measures of credibility, suspiciousness, likely guilt and memory report. However, there were clearer trends for negative affect, with increased ratings occurring over the course interview (i.e., negative affect became more pronounced). Although there were fluctuations across time points, in comparing the means for each of the measures between time points one and five, various impressions of the suspect significantly deteriorated with participants perceiving the suspect as more likely guilty, $t(214) = -4.01$, $p < .001$, $d = 0.28$, 95% CI [0.09, 0.47], and having a poorer memory report, $t(214) = 4.32$, $p < .001$, $d = 0.31$, 95% CI [0.12, 0.50], while participants' own feelings of negative affect increased, $t(214) = -4.11$, $p < .001$, $d = 0.19$, 95% CI [0.00, 0.38]. In contrast to these deteriorations, participants viewed the suspect as less suspicious by the end of the interview, $t(214) = 5.06$, $p < .001$, $d = 0.32$, 95% CI [0.12, 0.50]. There was no difference in impressions of credibility, $t(214) = 1.71$, $p = .089$, $d = 0.11$, 95% CI [-0.07, 0.30], at the beginning of the interview and the end.

Table 6

The means (standard deviation) and ANOVA results for ratings made across the interview at all five time points for each behaviour condition

	Behaviour					
Measure	Non-ASD	Low	High	Total	ANOVA	η^2 [95% CI]
Credibility						
Time 1	3.90 (0.99)	3.16 (0.98)	3.25 (0.89)	3.44 (1.00)	$F(2, 212) = 13.01$***	.109 [.000, .000]
Time 2	3.39 (1.00)	3.43 (0.99)	3.11 (0.89)	3.31 (0.97)	$F(2, 212) = 2.40$	.022 [.000, .068]
Time 3	3.54 (1.06)	3.65 (1.17)	3.18 (1.01)	3.46 (1.10)	$F(2, 212) = 3.75$*	.034 [.000, .087]
Time 4	3.77 (1.11)	3.54 (1.24)	3.08 (1.02)	3.46 (1.16)	$F(2, 212) = 6.97$***	.060 [.010, .110]
Time 5	3.47 (1.28)	3.41 (1.31)	3.06 (1.12)	3.31 (1.25)	$F(2, 212) = 2.32$	.021 [.000, .067]
Suspiciousness						
Time 1	2.75 (0.87)	3.33 (0.75)	3.93 (0.64)	3.34 (0.90)	$F(2, 212) = 43.47$***	.249 [.162, .336]
Time 2	3.18 (0.86)	3.26 (0.96)	3.74 (0.73)	3.40 (0.88)	$F(2, 212) = 9.23$***	.077 [.020, .146]
Time 3	2.81 (0.94)	2.83 (0.95)	3.38 (0.79)	3.01 (0.93)	$F(2, 212) = 9.39$***	.078 [.020, .135]
Time 4	2.63 (0.98)	2.82 (1.02)	3.44 (0.78)	2.96 (0.99)	$F(2, 212) = 15.08$***	.117 [.046, .188]
Time 5	2.72 (1.05)	2.95 (0.99)	3.44 (0.82)	3.04 (1.00)	$F(2, 212) = 10.71$***	.088 [.026, .150]
Likely guilt						
Time 1	2.99 (1.14)	3.52 (1.18)	3.76 (1.14)	3.42 (1.14)	$F(2, 212) = 9.52$***	.079 [.021, .137]
Time 2	3.72 (1.10)	3.86 (1.23)	4.11 (1.03)	3.90 (1.13)	$F(2, 212) = 2.21$	.020 [.000, .065]
Time 3	3.42 (1.21)	3.38 (1.36)	3.75 (1.29)	3.52 (1.29)	$F(2, 212) = 1.81$	.017 [.000, .059]
Time 4	3.21 (1.35)	3.51 (1.49)	4.13 (1.17)	3.61 (1.39)	$F(2, 212) = 8.67$***	.073 [.017, .129]
Time 5	3.51 (1.51)	3.70 (1.48)	4.13 (1.19)	3.78 (1.42)	$F(2, 212) = 3.60$*	.032 [.000, .085]
Memory report						
Time 1	4.17 (0.96)	3.54 (1.13)	4.05 (0.92)	3.92 (1.04)	$F(2, 212) = 7.98$***	.068 [.014, .122]
Time 2	3.76 (1.09)	3.92 (1.06)	3.75 (0.95)	3.81 (1.03)	$F(2, 212) = 0.61$	.006 [.000, .034]
Time 3	3.64 (1.08)	3.92 (1.24)	3.67 (1.05)	3.74 (1.13)	$F(2, 212) = 1.30$	.012 [.000, .050]
Time 4	4.00 (1.08)	3.93 (1.24)	3.78 (1.08)	3.90 (1.14)	$F(2, 212) = 0.67$	.006 [.000, .036]
Time 5	3.60 (1.32)	3.69 (1.34)	3.38 (1.15)	3.56 (1.28)	$F(2, 212) = 1.13$	.010 [.000, .046]
Negative affect						
Time 1	1.90 (0.79)	1.90 (0.85)	2.06 (0.96)	1.95 (0.87)	$F(2, 212) = 0.79$	.007 [.000, .039]
Time 2	1.98 (0.89)	1.89 (0.94)	2.11 (1.05)	1.99 (0.96)	$F(2, 212) = 0.96$	.009 [.000, .043]
Time 3	2.05 (1.07)	1.91 (1.01)	2.14 (1.11)	2.03 (1.07)	$F(2, 212) = 0.84$	.008 [000, .040]
Time 4	2.10 (1.14)	2.06 (1.08)	2.33 (1.18)	2.16 (1.14)	$F(2, 212) = 1.17$	.011 [.000, .047]
Time 5	2.15 (1.23)	2.00 (1.09)	2.29 (1.22)	2.15 (1.18)	$F(2, 212) = 1.12$	.010 [.000, .046]

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Interaction between time point and behaviour. There was a significant interaction between time point and behaviour for measures of credibility, suspiciousness, likely guilt, and memory report (see Tables 6 and 7). Again, there were fluctuations across the different time points for the effect of behaviour for each of the measures. Importantly, it should be noted that the effect of suspect behaviour was significant at the first time point for all ratings. This demonstrated that the effects of ASD behaviour upon more negative participant impressions of the suspect were present after just four minutes of viewing the interview, with larger effect sizes for each of these measures compared to subsequent time points.

Table 7

The univariate results for the interaction between the effects of time point and behaviour on each measure

Measure	*df*	*F*	*p*	η^2 [95% CI]
Credibility	6.07, 643.64	6.61	<.001	.056 [.024, .080]
Suspiciousness	5.90, 624.95	5.72	<.001	.043 [.016, .062]
Likely guilt	6.04, 640.52	2.76	.012	.024 [.002, .038]
Memory report	6.29, 666.30	6.64	<.001	.055 [.023, .078]
Negative affect	4.36, 461.99	0.97	.459	.008 [.000, .014]

The significant effect of behaviour persisted at each time point for ratings of suspiciousness. However, the behaviour effect was not significant at time points two and three for ratings of likely guilt, and time points two and five for ratings of credibility. Again, for each time point there was no significant effect of behaviour for ratings of negative affect; however, there was a significant effect of behaviour on memory report at time point one. Tukey post-hoc tests revealed that at time point one those who viewed low intensity behaviours rated the suspect as providing a poorer memory report than those who viewed non-ASD and high intensity behaviours, with effect sizes $d = 0.60$, 95% CI [0.26, 0.93] and $d = 0.50$, 95% CI [0.16, 0.83] respectively. This effect did not continue for the subsequent time points, with no significant difference for ratings of memory report between conditions.

Differences in Verdict between Behaviour Conditions

To examine whether ASD behaviour led to a greater number of guilty verdicts, separate chi-square analyses were used to examine the percentage of guilty verdicts for the three behaviour conditions for verdict entered as final (which could have been entered at any of the five time points) or verdict formed by the end of the interview (at time point five) (see Table 8). As predicted, for the timing of both verdicts, those who viewed high intensity ASD behaviours provided a greater number of guilty verdicts than those who viewed non-ASD behaviours. However, there was no difference in verdict for those who viewed low intensity ASD behaviour and non-ASD behaviour, or for low intensity and high intensity ASD behaviour. These results therefore partially supported the hypothesis that ASD behaviour would lead to greater increase in guilty verdict compared to non-ASD, but this was supported only for those ASD behaviours that were higher in intensity.

Table 8

Percentage (and number) of guilty verdicts entered at the last opportunity or entered at any time point as the final decision, and chi-square results for the difference between each behaviour condition including phi coefficient effect size [and 95% confidence intervals]

			Behaviour	
Timing of verdict	Behaviour	% Guilty (*n*)	2	3
Last opportunity				
	1. Non-ASD	38.9% (28)	$\chi^2(1) = 1.18$ $\phi =$ .105 [-.060, .265]	$\chi^2(1) = 7.22$, $\phi =$ .238 [.077, .387]**
	2. Low intensity	53.5% (38)		$\chi^2(1) = 2.08$, $\phi =$ .135 [-.030, .293]
	3. High intensity	66.7% (48)		
Final decision				
	1. Non-ASD	44.4% (32)	$\chi^2(1) = 2.52$, $\phi =$ .147 [-.018, .304]	$\chi^2(1) = 10.06$, $\phi =$ .278 [.120, .422]**
	2. Low intensity	54.9% (39)		$\chi^2(1) = 2.06$, $\phi =$ .134 [-.031, .292]
	3. High intensity	68.1% (49)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Changes in verdict across the interview. To examine whether the effect of behaviour on verdict differed across the interview, a repeated measures logistic regression was performed using generalised estimating equations. This showed that there was a main effect of behaviour Wald $\chi^2(2) = 7.41, p = .025$; and time point, Wald $\chi^2(4) = 52.47, p < .001$; but no interaction between behaviour and time point, Wald $\chi^2(8) = 10.39, p = .239$. Therefore, the effect of high intensity ASD behaviours upon verdict was maintained across the interview. The parameter estimates were examined for the main effect of time point (see Table 9). This showed that there were fluctuations in the number of guilty verdicts over the course of the interview, with a greater number at the end of the interview compared to the beginning.

Table 9

The percentage of increase or decrease in guilty verdict across time points and unstandardised regression coefficients [and 95% confidence intervals]

		Time			
Time	% Guilty (*n*)	1	2	3	4
1	46.0% (99)	-			
2	60.5% (130)	(+14.5%) *B* = -0.77 [-1.22, -0.31]*			
3	44.7% (96)	(-1.3%) *B* = 0.00 [-0.46, 0.46]	(-15.8%) *B* = 0.77 [0.35, 1.19]*		
4	51.6% (111)	(+5.6%) *B* = -0.58 [-1.12, -0.03]	(-8.9%) *B* = 0.19 [-0.29, 0.67]	(+6.9%) *B* = -0.58 [-0.95, -0.20]*	
5	55.8% (120)	(+9.8%) *B* = 0.70 [0.18, 1.22]*	(-4.7%) *B* = -0.07 [-0.56, 0.43]	(+11.1%) *B* = 0.70 [0.23, 1.17]*	(+4.2%) *B* = 0.13, [-0.26, 0.51]

Note. * is significant for Bonferroni correction at $p < .01$

Participants who changed their verdict. Although there was no prediction made, it was of interest to examine the number of participants who recanted their earlier verdict entered as final by the end of the interview, and whether there was an effect of ASD behaviour on changes in decision making. Of the 44.7% (n = 96) of participants who submitted their final verdict before time point five, only 14.58% (n = 14) of these changed their decision when it came to the last opportunity at time point five. Ten of those participants changed to an innocent decision, whilst four changed to a guilty decision, with these participants coming from each of the behaviour conditions (non-ASD n = 4, low intensity and high intensity n = 5). This suggested that ASD behaviour did not influence changes in final verdict decision making over the course of the interview.[2]

The Influence of Behaviour upon Verdict through Suspect Evaluations

Inter-relationships between measures. Given that expectancy violation and suspect impressions were significantly related to suspect behaviour, it was appropriate to inspect the relationship between those variables and examine their individual and combined roles in mediating the relationship between behaviour and verdict. Table 10 shows the correlations between the various impression measures. There were moderate to high inter-correlations between all of the measures in the predicted directions. Because of the high inter-correlation between measures, it was not clear which may have contributed to explaining unique variance in the verdict decision, or which may have been working to influence the verdict through its dependence on one of the other measures. Specifically, it should be noted that whilst memory report correlated with each of the measures, as predicted, it was not included within the following mediation model given there was no effect of behaviour upon memory report, likely due to the report being maintained through the script across conditions.

[2] The same pattern of changes from the final verdict entered during the interview to the verdict entered at the end of the interview were consistent across all studies within this thesis. Thus, these results regarding changes in verdict between behaviour conditions were not discussed further within subsequent studies of this thesis.

Table 10

Correlation [and 95% confidence intervals] between each of the subjective measures

	Measure				
Measure	1	2	3	4	5
1. Credibility	-				
2. Suspiciousness	-.765 [-.703, -.815]	-			
3. Affect	-.287 [-.159, -.405]	.357 [.234, .468]	-		
4. Likely guilt	-.792 [-.736, -.837]	.814 [.763, .855]	.273 [.144, .392]	-	
5. Appropriateness	.639 [.552, .712]	-.629 [-.541, -.704]	-.225 [-.094, -.348]	-.573 [-.476, -.656]	-
6. Memory report	.811 [.760, .852]	-.629 [-.541, -704]	-.280 [-.152, -.399]	-.688 [-.610, -.753]	.523 [.418, .614]

Note. Each correlation coefficient was significant at $p < .001$

Mediation model. To examine whether the effect of ASD behaviour on verdict was mediated by violated expectations and impressions of the suspect, the PROCESS tool (Hayes, 2018) model 6 was used to conduct a serial mediation analysis using ordinary least squares path analysis. This examined the degree to which the behaviour condition viewed by participants indirectly influenced the verdict entered as final via its effects on behavioural appropriateness, negative affect, perceptions of suspiciousness and credibility. Several variables within the model were recoded for this analysis only, so that higher scores of all variables reflected more negative impressions. That is, behavioural appropriateness was reverse coded and renamed 'behavioural inappropriateness' so that higher scores reflected impressions of greater inappropriateness; credibility was reverse coded and relabelled 'non-credibility' with higher scores reflecting poorer impressions of credibility; and verdict was recoded so that a 1 reflected an innocent verdict, and 2 for a guilty verdict. The coding of negative affect and suspiciousness remained the same. Behaviour was dummy coded so that

non-ASD behaviour was used as a reference group to examine the effects of low intensity and high intensity ASD behaviour.

To test for serial mediation, the verdict that participants decided was their final decision was entered as the outcome variable, suspect condition as the predictor variable, and the mean ratings of behavioural inappropriateness, negative affect, suspiciousness and non-credibility as four separate mediators entered in that order. This order was selected due to the hypothesised relationship that participants would have their expectancies violated by the ASD behaviours (impressions of greater inappropriateness), leading to an increase in negative affect as based on the expectancy violations theory. This was then predicted to arouse suspicion regarding the suspect, which may inform interpretations of credibility. Given that final verdict (which could be made at any of the five time points) was entered as the outcome variable, the mediator variables were adjusted to account for this, so they did not include impressions made after that verdict was entered. The values entered for these variables were an average of each impression rating made over the number of time points viewed before the final verdict was entered. That is, if a participant entered their final verdict at time point three, the model used the mean impression ratings from time points one to three as mediators, whereas if a participant waited until the final time point to enter their decision as final, the mediators would be based on the mean impression ratings over all five time points of the interview. This was carried out for all impressions except for behavioural appropriateness, with this rating only made at the end of the interview. The indirect effects were subjected to a bias-corrected bootstrap analysis with 10,000 bootstrap samples and 95% confidence intervals. The model was run comparing high intensity ASD with non-ASD behaviour; and low intensity ASD with non-ASD behaviour.

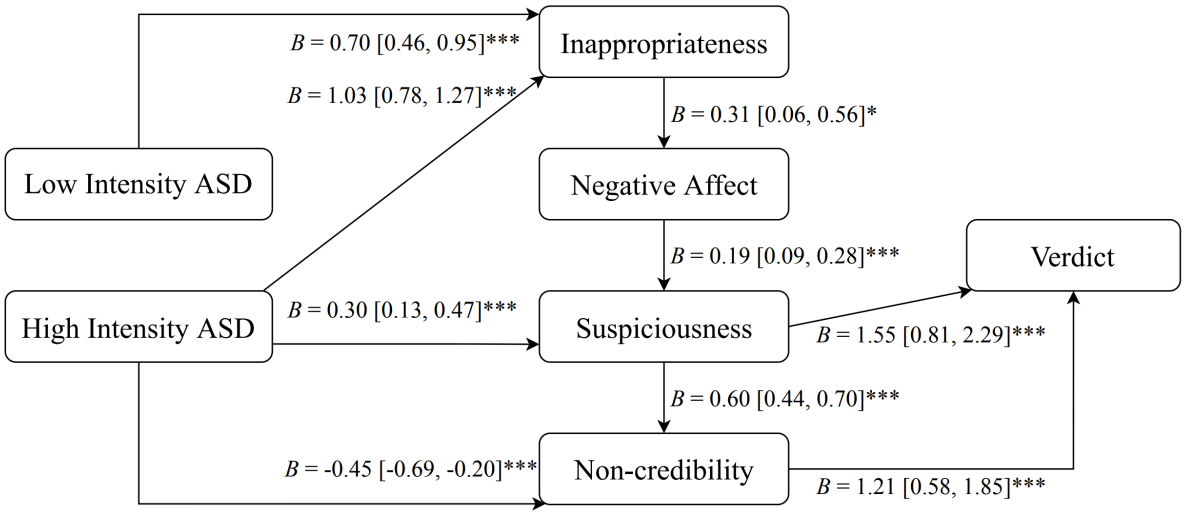


Figure 2. PROCESS model comparing low intensity and high intensity conditions with the non-ASD behaviour condition, with significant unstandardised regression coefficient direct effects [and 95% confidence intervals] between each variable entered into the model.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 2 shows the direct effects between all variables entered into the model that were significant, with Table 11 displaying the total, direct and indirect effects of behaviour condition upon the final verdict through the different pathways within the model. The direction and values of the direct effects in Figure 2 (positive or negative), and the significant indirect effect of behaviour on verdict through all of the mediators, provided support for the hypothesis. Participants in both the low and high intensity ASD behaviour conditions interpreted those behaviours as more behaviourally inappropriate, which was in turn associated with increased feelings of negative affect, increased impressions of suspiciousness and a lack of credibility, and a greater likelihood they would determine the suspect was guilty of involvement in the crime compared to those who viewed non-ASD behaviour. This indirect effect, along with the other pathways through which the ASD behaviour significantly influenced the verdict relative to non-ASD behaviour (presented in Table 11), showed that high intensity ASD behaviour had a stronger effect compared to the low intensity ASD behaviour. In particular, high intensity ASD behaviour had a stronger effect upon verdict

through the pathway of impressions of suspiciousness and credibility (both individually and together within the model) compared to low intensity behaviour. These results supported the prediction that those variables would mediate the relationship between behaviour and verdict, and the effect would be stronger when there was a higher intensity of ASD behaviours displayed. There was no significant direct effect of behaviour on verdict after controlling for those mediating variables. Therefore, there was no evidence that behaviour influenced verdict independent of its effect on each of those variables entered in the model.

One relationship within the model that was unexpected (see Figure 2) was the significant direct effect of high intensity behaviour upon more positive impressions of credibility after controlling for the effect of those other mediating variables, $B = -0.45$, 95% CI [-0.69, -0.20], $p < .001$. The effect of credibility within all of the indirect pathways containing those other variables was in the expected direction, (e.g., ASD behaviour led to decreased credibility and to increased impressions of guilt when credibility was associated with inappropriateness, suspiciousness and negative affect). However, after accounting for each of those other variables, high intensity behaviour was associated with more favourable impressions of credibility compared to non-ASD behaviour, and a lower likelihood of a guilty verdict. This effect was not present for low intensity ASD behaviour after controlling for the mediating variables. It is possible that there was something associated with the high intensity ASD behaviour that may have caused participants to counteract their decisions of the suspect's credibility. Perhaps, for example, the high intensity ASD behaviour might have been interpreted by participants as indicating a diagnosis of ASD or another disorder (e.g., anxiety). Thus, although participants judged those behaviours to be inappropriate and were suspicious of the suspect, the inference of some underlying disorder may have to some extent counteracted the negative impressions of credibility.

Table 11

Unstandardised regression coefficient [and 95% confidence intervals] for each of the indirect pathway effects on the final verdict comparing the non-ASD behaviour condition separately with the low and high intensity behaviour conditions

	Behaviour	
Pathway	Low intensity	High intensity
IN	0.21 [-0.25, 0.76]	0.30 [-0.36, 1.07]
IN - NA	-0.02 [-0.14, 0.08]	-0.03 [-0.20, 0.11]
IN - SU	0.50 [0.23, 0.92]*	0.74 [0.36, 1.23]*
IN - NC	0.38 [0.16, 0.75]*	0.55 [0.24, 1.00]*
IN - NA - SU	0.06 [0.02, 0.14]*	0.09 [0.03, 0.19]*
IN - NA - NC	0.00 [-0.03, 0.03]	0.01 [-0.04, 0.05]
IN - SU - NC	0.22 [0.10, 0.43]*	0.33 [0.15, 0.59]*
IN - NA - SU - NC	0.03 [0.01, 0.07]*	0.04 [0.01, 0.10]*
NA	0.03 [-0.09, 0.25]	0.02 [-0.06, 0.24]
NA - SU	-0.08 [-0.23, 0.00]	-0.06 [-0.20, 0.04]
NA - NC	-0.00 [-0.06, 0.03]	-0.00 [-0.06, 0.02]
NA - SU - NC	-0.04 [-0.11, 0.00]	-0.03 [-0.10, 0.02]
SU	-0.02 [-0.46, 0.43]	0.48 [010, 1.04]*
SU - NC	-0.01 [-0.21, 0.20]	0.21 [0.04, 0.51]*
NC	-0.23 [-0.60, 0.02]	-0.54 [-1.04, -0.20]*
Total effect	0.59 [-0.07, 1.26]	1.15 [0.46, 1.83]*
Total indirect effect	1.03 [0.08, 2.05]*	2.11 [1.12, 3.25]*
Direct effect	-0.00 [-1.01, 1.00]	-0.22 [-1.29, 0.85]

Note. 'IN' is inappropriateness; 'NA' is negative affect; 'SU' is suspiciousness; 'NC' is non-credibility

* is a significant effect, as the 95% bootstrap confidence interval does not pass through zero

Five separate PROCESS mediation models assessed whether the same effects remained through the different pathways for each time point (see Appendix D for the table displaying these results). These models confirmed that the pathways that were significant and not significant in the overall model had similar effects at each of the individual time points. However, one result of note was that the direct effects of high intensity ASD behaviours upon verdict at time one and three were negative and significant, whereas the total effect of behaviour on verdict at those time points were not significant. This suggested that ASD behaviour was leading to more positive verdict decisions than non-ASD behaviour through its effect on another unmeasured variable not included within the model. In the full model across all time points credibility acted as a suppressor variable after controlling for the effect of the other mediating variables, with high intensity ASD behaviour perceived as more credible which led to a lower likelihood of a guilty verdict. At time points one and three, the significant negative direct effect suggests that there was an additional unmeasured variable having a similar suppressive effect. Overall, however, the effect of the behaviour upon verdict was similar at each time point, and the high intensity behaviours exerted a stronger effect upon verdict decision through those significant pathways compared to low intensity behaviours.

Number of Time Points to Arrive at a Final Verdict

To examine whether ASD behaviour led to a final verdict being determined earlier or later during the interview than non-ASD behaviour, a one-way ANOVA tested the effect of the behaviour condition on how long it took participants to reach their final verdict over the five time points. This revealed a significant effect of behaviour condition, $F(2, 212) = 3.23$, $p = .041$, $\eta^2 = .030$, 95% CI [.000, .081]. Tukey post-hoc tests revealed that it took fewer time points to make a decision for those who viewed low intensity behaviours ($M = 3.46$, $SD = 1.67$) than those who viewed non-ASD behaviours ($M = 4.10$, $SD = 1.26$), $p = .033$, $d = 0.43$,

95% CI [0.10, 0.76]. However, there was no significant difference between low intensity and high intensity behaviours ($M = 3.85$, $SD = 1.54$), $p = .280$, $d = 0.24$, 95% CI [-0.09, 0.57], or between non-ASD and high intensity, $p = .577$, $d = 0.18$, 95% CI [-0.15, 0.50]. See Table 12 for the percentage of participants who made a decision at each time point.

Table 12

Percentage of participants who submitted their final decision at each of the time points for each behaviour condition

	Time Point				
Behaviour	1	2	3	4	5
Non-ASD	6.9%	5.6%	15.3%	15.3%	56.9%
Low intensity	19.7%	16.9%	9.9%	4.2%	49.3%
High intensity	12.5%	12.5%	12.5%	2.8%	59.7%

Confidence of Involvement

It was possible that the display of ASD behaviours may have made participants more confident in their verdict as it provided further information on which to base decision making. Alternatively, it was possible that ASD behaviour could lead to lower verdict confidence if the conclusions drawn from that behaviour by participants opposed those drawn from the information revealed within the interview. A one-way ANOVA tested the effect of the behaviour condition on ratings of confidence in participant verdicts made at the final opportunity (time point five) and their confidence when submitting their verdict as final. Table 13 presents the mean confidence ratings for each behaviour condition. This revealed no significant effect of behaviour condition at the final opportunity, $F(2, 212) = 1.16$, $p = .317$, $\eta^2 = .011$, 95% CI [.000, .047], or at the final decision, $F(2, 212) = 0.78$, $p = .461$, $\eta^2 = .007$, 95% CI [.000, .039].

Table 13

Mean percentage (and standard deviation) of confidence in verdict rating for the three behaviour conditions

	Timing of verdict	
Behaviour	Final opportunity	Final decision
Non-ASD	66.28 (22.84)	64.88 (22.73)
Low intensity	65.51 (23.46)	66.21 (21.47)
High intensity	60.71 (25.05)	61.63 (23.66)
Total	64.16 (23.82)	64.23 (22.62)

There was also no effect of behaviour for confidence ratings when examined separately for a guilty, $F(2, 117) = 0.81, p = .445, \eta^2 = .014$, 95% CI [.000, .069], or innocent verdict, $F(2, 92) = 0.78, p = .462, \eta^2 = .018$, 95% CI [.000, .084], made at the final opportunity, or for a guilty, $F(2, 111) = 0.63, p = .537, \eta^2 = .011$, 95% CI [.000, .063], or innocent verdict, $F(2, 98) = 0.20, p = .818, \eta^2 = .004$, 95% CI [.000, .042], made as the final decision at any time point (see Table 14).

Table 14

Mean percentage (and standard deviation) of confidence in guilty and innocent verdicts for the three behaviour conditions

	Timing of verdict			
	Final opportunity		Final decision	
Behaviour	Guilty	Innocent	Guilty	Innocent
Non-ASD	67.78% (21.74)	65.08% (23.89)	64.39% (23.78)	65.18% (22.31)
Low intensity	68.08% (22.94)	62.38% (24.06)	67.16% (21.88)	65.12% (21.26)
High intensity	62.41% (24.70)	57.09% (25.96)	61.50% (24.25)	61.88% (22.95)
Total	65.68% (23.34)	62.23% (24.40)	64.10% (23.29)	64.38% (21.95)

A comparison of confidence ratings, regardless of behaviour condition, between those who decided at the final opportunity that the suspect was guilty and innocent did not reveal

any significant difference, $t(213) = 1.06$, $p = .292$, $d = 0.14$, 95% CI [-0.13, 0.41]. There was also no significant difference found when looking at overall final decision confidence ratings for guilty and innocent decisions, $t(213) = -.09$, $p = .928$, $d = 0.01$, 95% CI [-0.26, 0.28].

Discussion

The Study 1 findings confirmed that ASD behaviours on the part of the suspect violated expectations of appropriate behaviour and led to more negative evaluations of that suspect. Evaluations of the suspect and violated expectancies mediated the negative effect of ASD behaviour upon verdict. Surprisingly, however, there was also evidence of a pathway through increased credibility in which high intensity ASD behaviour led to more favourable impressions of guilt compared to non-ASD behaviour.

According to the expectancy violations theory, observers have expectations about appropriate non-verbal behaviours for particular contexts, as based on personal schemas and societal norms. This was demonstrated in Study 1 when the manipulated ASD suspect behaviours were interpreted as inappropriate relative to the control condition. The theory suggests there are several processes that take place when an expectancy violation occurs (Burgoon, 2016). First, violations are purported to draw the observer's attention away from what is being said during an interaction, so the observer focuses on the characteristics of the violator and the meaning and implications of the behavioural violation. This focus on the violating ASD behaviour was illustrated by the significantly different evaluations of the ASD and non-ASD behaviour groups (e.g., credibility, suspiciousness, likely guilt), despite the script being identical within each condition and the absence of any effect of behaviour upon perceptions of the suspect's memory report.

This attentional shift is considered to be a function of a change in physiological and/or cognitive arousal caused by the violation. Burgoon and Hale (1988) argued that this change in arousal determines the level of attention that the observer pays to the violating

behaviour. Arousal was defined by Burgoon, Kelley, Newton, and Keeley-Dyerson (1989) as either positive or negative in valence, and high or low in intensity (e.g., sadness would be defined as low-negative arousal, anger as high-negative, and excitement as high-positive). Study 1 only provided partial support for this part of the process. There was no difference between the behaviour conditions in negative affect during the interview (which aimed to measure feelings of arousal) reported by participants. However, there was a small increase in feelings of negative affect reported during the interview compared to a baseline measurement of affect (before the interview) for only those who viewed high intensity ASD behaviour. Additionally, there was a small but significant positive relationship found between violated expectancies and negative affect. Thus, across behaviour conditions, violated expectations were related to increased feelings of negative affect, but only to a small degree. Even when only those lower-arousal items from the scale assessing negative affect were examined, there was no significant difference between the groups. It seems likely that, given the passive manner in which participants were involved in the police-suspect interaction (i.e., sitting alone in a room and watching the pre-recorded interview on a screen), there was insufficient opportunity for feelings of arousal to occur. This was in contrast to those studies that have found a more psychologically and physiologically (e.g., heart rate, skin temperature) arousing influence of behavioural violations within the context of live interactions where observers were face to face with the violating interaction partner (Cappella & Greene, 1984; Le Poire & Burgoon, 1994). Burgoon (1993) suggests that those studies that did produce greater amounts of arousal involved violations of personal space by an interaction partner and, due to that physical involvement, were likely to stimulate a certain level of arousal. They suggest that different types of violations are likely to produce arousal in different ways. Increases in physical arousal were highlighted as particularly important when assessing live interactions (Le Poire & Burgoon, 1996). However, in the absence of a live interaction, arousal may

manifest differently, perhaps in terms of an increased alertness rather than an increase in physiological or emotional arousal (Burgoon & Hale, 1988).

It seems possible that, whilst feelings of negative affect were not aroused within Study 1 by the violating ASD behaviour, other ratings of suspect impressions made by participants may indicate cognitive arousal and increased alertness. For example, participants who viewed the ASD behaviours rated the suspect as more suspicious, perhaps reflecting a form of cognitive arousal. Further research could examine whether an objective physiological measure of arousal, as in Le Poire and Burgoon (1994), would show any behaviour group difference or relationship with violated expectations. However, for the reasons already outlined, it seems unlikely given the passive role of the observer in the interaction.

Following the purported arousal change and attentional focus on the violation, expectancy violations theory suggests an appraisal process of interpreting and evaluating the behaviour of the interaction partner takes place. Observers will accept without question the displays of those behaviours that confirm expectations, but further scrutinize behaviours that violate those expectations. Meaning will be assigned to the behaviour (e.g., whether it is deliberate or beyond the control of the interaction partner, and what the particular behaviour represents) and there will be an evaluation of whether the violation is of a desirable or undesirable nature. (With some cultural exceptions), certain non-verbal behaviour may often be recognised as conveying a particular meaning within certain contexts. Further, the interpretation of that meaning may be dependent upon one's relationship with the interaction partner or other situational factors (Burgoon, 1993). For example, within a criminal context, mock-juror and police decision making studies have demonstrated that a violating lack of eye contact is commonly accepted as indicating the suspect or witness is being deceptive (Neal & Brodsky, 2008; Winkel, 1999).

A negative interpretation and evaluation of violating ASD behaviour occurred in Study 1. Together, the context of a police interview and the requirement to assess guilt were likely to heighten alertness to any violating behaviour, with the behavioural violations of the suspect leading to increased guilty verdicts mediated by negative evaluations of the behaviour, including impressions of appropriateness, negative affect, suspiciousness and credibility.

In addition to the negative effect of ASD behaviour upon evaluations of the suspect, the mediation analysis revealed an opposing mechanism through which ASD behaviour led to more positive impressions of guilt. After accounting for the effect of violated expectations, feelings of negative affect and impressions of suspiciousness upon credibility, high intensity ASD behaviour was judged more credible than non-ASD behaviour, with this leading to a decreased likelihood of a guilty verdict. As suggested earlier, displays of the high intensity ASD behaviour may have suggested that the suspect had a diagnosis of ASD or another disorder (e.g., anxiety or mood disorder). Even though participants judged those behaviours as inappropriate and suspicious, they then overcompensated in their credibility ratings and verdict. This explanation is consistent with findings from studies in which more favourable impressions have been formed regarding an individual when observers are told the subject has an intellectual disability or a diagnosis of some disorder, compared to when they are unaware or when they are told the subject is typically developing (Mossière & Maeder, 2016; Najdowski, Bottoms, & Vargas, 2009; Sasson & Morrison, 2019). There was, however, no probe within Study 1 that assessed whether participants thought that the suspect had a diagnosis of any disorder, and thus this explanation could not be tested. Within the clinician analysis of the suspect's behaviour, clinicians identified the suspect as displaying characteristics of an ASD diagnosis, and to a lesser extent an anxiety or mood disorder. However, those clinicians had extensive experience with those disorders and were primed to

look for those behaviours and relate them to a disorder. Thus, it cannot be assumed that participants would have picked up on the same interpretations of the suspect behaviour.

Overall, however, a more negative interpretation of ASD behaviour was indicated by the number of guilty verdicts for each group, with those who viewed high intensity behaviour more likely to decide the suspect was guilty than those who viewed non-ASD behaviour. The absence of significant differences between the low intensity ASD behaviour and control groups for verdict, suspiciousness, likely guilt and credibility may suggest that only intense displays of ASD behaviour have an impact upon these evaluations. However, given the pattern of results was in the predicted direction, and the effect size confidence intervals did suggest the possibility of quite strong effects, larger cell sizes may have revealed significant effects.

The results also only partially supported the hypothesis that over the course of the interview the impressions of the suspect would become progressively more negative. Impressions fluctuated over the five time points when each of the ratings were assessed, however, there were clearer trends when comparing the first and last time points. This indicated poorer impressions of likely guilt, memory report and negative affect; and more positive impressions of suspiciousness by the end of the interview compared to the beginning. The fluctuation in ratings during the interview may come down to the information contained within the script. Although the script was the same across behaviour conditions, at certain time points of the interview the suspect revealed information that may appear incriminating (e.g., his connection to the ringleader of the robbery, his financial status). Given that observers will base evaluations of an individual on the content of their speech as well as their behaviour within a criminal context (Bell & Loftus, 1989; Tenney et al., 2011), this difference in information may have caused the difference in ratings at those different time points across all behaviour conditions. Thus, of greater interest, was the significant

interaction between behaviour and time point for ratings of credibility, suspiciousness, likely guilt and memory report, with the effect of behaviour fluctuating over the different time points for each of the ratings. This was potentially due to the specific behaviours displayed within each group by the suspect at those time points. Within the low and high intensity ASD interviews the timing of certain behaviours were not controlled; see Appendix A for the different behaviours displayed by the suspect at each point in the interview between groups. For example, there was not a specific point in the script when in both interviews the suspect averted gaze at either a high or low intensity. Instead, there may be a point in the interview where the low intensity suspect averted gaze and at the same point in the interview the high intensity suspect repetitively shook his hands. Therefore, a difference in which behaviours were displayed at different times may have led to a fluctuation in the behaviour effect at these different time points of the interview.

Importantly, however, there were significant effects of behaviour for each of the impression ratings at the first time point. That is, after only four minutes of watching the suspect interview, the effect of ASD behaviour upon more negative evaluations was present. Furthermore, the size of the effect of behaviour upon these impressions was largest at the first time point compared to subsequent time points. In summary, these results demonstrated that ASD behaviour worked quickly to cause more negative evaluations of the suspect. Further, although the size of the effect of behaviour fluctuated over the interview, more negative evaluations of ASD behaviour compared to non-ASD behaviour were maintained over the course of a 22-minute interview.

An important feature of Study 1 was that the suspect maintained the same script for each of the behaviour conditions, and the information presented to participants throughout the interview provided minimal hard evidence of the suspect's guilt or innocence. Although there were some details presented within the interview that potentially linked the suspect to the

crime, there was nothing decisive that clearly indicated his involvement. This was apparent when looking at the number of participants in the control (non-ASD) condition who decided guilty as their final verdict (44.4%), and the confidence in verdict across conditions ranging from 60 to 65%. This evidence ambiguity was important to maintain for Study 1 so that the role of the suspect's behaviour could more clearly be examined. In real-life interviewing, however, the interviewing officer may often be aware of the existence and nature of other evidence. Therefore, a second study was undertaken to address how the involvement of evidence may shape how those ASD behaviours are interpreted.

CHAPTER 3

Study 2

It is possible that the role suspect behaviours played in influencing impressions and decision making may vary depending on the amount and type of evidence available. When accompanied by either exonerating or incriminating evidence concerning the suspect, for example, the behaviour effect may be overridden as decisive evidence becomes a more dominant source of influence for impression formation. Social persuasion theories, such the heuristic-systematic model (Chaiken, Liberman, & Eagly, 1989), provide support for the view that stronger and more decisive evidence would weaken the influence of the behaviours.

Heuristic-Systematic Model of Processing

The heuristic-systematic model suggests that there are two processing modes that may occur when forming attitudes on a subject: systematic and heuristic. Systematic processing is described as a methodical approach for a deeper and more detailed analysis of relevant information when making a judgment, requiring greater cognitive effort and motivation. When using this processing route, observers engage in issue-relevant thoughts and scrutinise the information being relayed. Alternatively, heuristic processing is centred on using a series of mental shortcuts based on prior knowledge and/or previous experience for a more cognitively efficient way of assessing information. This processing route is often activated when motivation or the availability of cognitive resources are low and relies on available cues rather than careful thought to assess the validity of a message and form an attitude.

The model explains that during attitude formation these two processes may work independently or interact depending on the nature of the information and task presented. Specifically, when there is a high level of motivation and ability to process carefully (e.g., there are no time constraints and there is information available to process that is not too complex in nature), systematic processing is likely to be activated. If, however, a relevant

heuristic is presented, this is likely to increase heuristic processing (e.g., the more efficient ability to process information based on stereotypes or prejudice from previous knowledge). It is possible for both processes to be activated, with the level of processing used depending on the observer's sufficiency threshold. This relates to the level of confidence an individual feels they need to achieve in order to make a judgement. The heuristic-systematic model predicts two ways in which these processes may interact for motivated observers in their decision making, through either an attenuation or bias hypothesis. The attenuation hypothesis refers to when there is clear or unambiguous information presented that observers can systematically process to reach their sufficiency threshold, thus reducing the necessity for, or overriding, heuristic processing of information. The model assumes this attenuation of heuristic cues may occur only for observers who are highly motivated (Chen, Duckworth, & Chaiken, 1999). Alternatively, the bias hypothesis purports that heuristic processing may bias systematic processing when there is ambiguity in the information to be analysed and no clear conclusion can be drawn to satisfy the sufficiency threshold (Chaiken et al., 1989).

Evidence of Processing within a Criminal Context

Several studies have provided support for both the attenuation and bias hypotheses for attitude formation within a criminal context (Ask & Landström, 2010). In one study by Heath, Grannemann and Peacock (2004) the strength of evidence provided in support of a female defendant suspected of murder was manipulated (weak, strong), as well as the emotional behaviour of the defendant. After reading details of the manipulated evidence and watching the video-taped testimony, mock-juror decisions were only affected by the emotional behaviour of the defendant when the evidence was weak. That is, when presented with weak incriminating evidence and when the defendant displayed a high level of emotional behaviour, they were less likely to be judged guilty, received shorter sentences, and were perceived as more honest than when the defendant displayed a low level of

emotional behaviour. Alternatively, when strong incriminating evidence was presented, there was no effect of emotional behaviour upon judgments of guilt, sentence length or honesty. Thus, heuristic processing of behaviour only biased processing when there was weak evidence to systematically process (supported the bias hypothesis). However, when there was stronger evidence to systematically process, the heuristic processing of behaviour had a weaker influence on decision making (supported the attenuation hypothesis).

A similar mock-juror study was run by Wessel et al. (2012) in which the testimonial details provided by a male rape suspect were manipulated (admitted using physical force, denied use of force), as was the suspect's emotional behaviour (positive (e.g., light-hearted), neutral (e.g., flat), or negative (e.g., showed despair)). More positive emotional behaviour reduced credibility judgments similarly within both versions of the testimony, and there was no effect of testimony details on judgments of credibility. This was similar to Heath et al. (2004) where they found no main effect of evidence strength on credibility ratings. However, for ratings of guilt, Wessel et al. found no main effect of behaviour for either version of the testimony, but a greater probability of guilt for the testimony where the suspect admitted to using physical force. With no interaction detected between testimony details and emotional behaviour, these findings did not lend support for either heuristic-systematic model hypothesis. The results instead suggested differences in processing style depending on the evaluation that was being made. For example, for decisions about guilt, participants were relying on systematic processing of the testimony details over heuristic processing of emotional behaviour, but for credibility judgements they employed greater heuristic processing of the emotional behaviour.

A key difference between these two studies was the way in which the strength of evidence was manipulated. Heath et al. (2004) provided participants with written details before viewing the suspect testimony, with these details providing either weak or strong

technical objective evidence against the suspect. In contrast, Wessel et al.'s (2012) evidence manipulation was enacted through the suspect's testimony in which they provided their own subjective details regarding the consent of the victim and the amount of force they believed that they used. It may be that differences in the type of additional evidence provided (hard evidence provided objectively vs. story details provided subjectively) may have led to this difference in the way the evidence influenced the effect of emotional behaviour. Additionally, the two versions of the suspect testimony provided in Wessel et al. (2012) did not appear to differ greatly, with only minimal wording changes. Given there was no manipulation check within the study for evidence strength, it becomes harder to draw conclusions from these results.

Several other studies provide support for the heuristic-systematic model in the context of effects of evidence strength on the use of heuristic cues. For example, manipulated stereotypicality of a defendant (based on ethnicity) had a weaker influence upon mock-juror decisions when evidence was stronger (including either exonerating or incriminating objective evidence provided by the prosecution or defence) (Jones, 1997). Similarly, a group-identity manipulation had a weaker effect on verdicts when objective inconsistent (but harder evidence) details were provided compared to consistent (but ambiguous) details (Brewer & Hupfeld, 2004). And the attractiveness of a defendant had a weaker biasing effect on juror judgments when objective evidence strength was increased (Baumeister & Darley, 1982).

The Present Study

Within Study 1 it appears that heuristic processing based on the ASD behaviour cues occurred, and that this may have biased participant decision making due to the lack of decisive evidence available to satisfy judgmental confidence from systematic processing. For example, the ASD behaviour violated expectations of appropriate behaviour and was evaluated negatively due to the assigned meaning of that behaviour based on heuristic

processing (e.g., the participants' prior belief that eye contact avoidance or repetitive movement indicates deception and thus lowers suspect credibility). The information on the crime presented within the interview provided some evidence for participants to process systematically; however, this information was ambiguous and circumstantial. Within the study, only the behaviour was manipulated, and the crime information was maintained across conditions. Therefore, the difference that was found in suspect evaluations between the groups could only be attributed to the behaviour of the suspect, consistent with the bias hypothesis. With increased cues available to process heuristically (high intensity compared to low intensity and non-ASD behaviour), a greater reliance on heuristic processing appeared to be biasing systematic processing.

Study 2 examined whether stronger evidence reduced the effect of ASD behaviour on impression formation and decision making. Before the suspect interview participants were subjected to an evidence manipulation in the form of details delivered by a fingerprint expert regarding the connection between the suspect and prints found at one of the crime scenes. This was similar to Heath et al. (2004) who presented objective evidence details to participants before the mock-testimony. These details in Study 2 were manipulated to provide either incriminating, exonerating or neutral evidence to participants. It was assumed that, given the monetary incentive within the task to correctly determine the suspect's guilt, at least a moderate level of participant motivation would be activated to allow an examination of how the two processing routes may interact.

I hypothesised that, in line with the heuristic-systematic model, when more decisive evidence was presented (either incriminating or exonerating), greater judgmental confidence would be gained from systematic processing of that evidence and, as a result, there would be a reduced effect from the ASD-like behaviours. Specifically, a replication of results from Study 1 was predicted in that when neutral (ambiguous) evidence was presented, those who

viewed ASD behaviour would provide a greater number of guilty verdicts than those who viewed non-ASD behaviour, with this effect mediated by the effect of ASD behaviour on judgments of the suspect's behavioural appropriateness, the observer's negative affect, and judgments of suspiciousness and credibility of the suspect. A much weaker behaviour effect was predicted for those who viewed incriminating and exonerating evidence. These predictions were based on the bias and attenuation hypotheses, and the notion that systematic and heuristic processing can co-occur (Chaiken et al., 1989). As in Study 1, it may be difficult for participants to form a confident judgment based on ambiguous (neutral) evidence alone, and thus a bias toward heuristic processing of the suspect behaviour would occur. However, with the availability of more decisive evidence to systematically process within the incriminating and exonerating conditions, this would contribute to greater judgmental confidence and attenuate the need to rely upon heuristic processing of behaviour. Therefore, I predicted that there would be a higher mean verdict confidence for those who viewed exonerating and incriminating evidence compared to neutral.

It was difficult to predict whether the effect of behaviour would differ between the incriminating and exonerating evidence conditions. It is possible that ASD behaviour may confirm expectations of guilt primed by incriminating evidence and negate expectations of innocence primed by exonerating evidence. The expectancy violations theory literature suggests that poorer communication outcomes would arise from a negative violation compared to a negative confirmation, but there is limited empirical research to support this view (Burgoon, 2016). Indeed, Afifi and Burgoon (2000) found the opposite and it was suggested that negative confirmations may yield poorer outcomes than negative violations. For judgments of social attractiveness they found that a negative behavioural violation that followed positive behaviour of an individual was discounted as an isolated occurrence, whereas negative confirmations of negative behaviour displayed by an individual were seen

as a pattern of negative conduct and thus more harshly interpreted. Therefore, although there was only a weak effect of behaviour predicted for either condition, I tentatively predicted that negative effect of ASD behaviour may be stronger for incriminating compared to exonerating evidence – in line with Afifi and Burgoon.

To understand further the processing routes reportedly used by participants in their decision making, Study 2 included a free-recall question asking participants to indicate the factors on which they based their verdict. One study that examined the attenuation hypothesis in the context of credibility judgements found that participants under low cognitive load (and who had greater opportunity for systematic processing) reported a greater number of factors relating to the verbal content of an individual's statement than to the individual's behavioural heuristic cues to inform credibility (Reinhard & Sporer, 2008). This difference was much smaller under high cognitive load (where it was more likely for heuristic processing to occur). In an emotional witness study by Wessel et al. (2012), participants reported that they based their credibility judgements upon the witness's factual statement to a greater degree than the witness's display of emotional expression, when in fact the evidence suggested otherwise. Wessel et al. found significant differences in credibility ratings that could only be attributed to the manipulation of emotional behavioural displays, with greater credibility for congruent emotions and decreased credibility for incongruent and neutral emotions. Therefore, it was concluded that whilst emotional expression was influencing credibility judgements, participants appeared not to be aware of this influence. This discrepancy in decision making awareness was further supported by Shaw, Garcia, and McClure (1999) who found that lay peoples' beliefs about the information used when forming a credibility judgment was not in line with the information on which people based these judgements.

Based on these findings regarding decision makers' potential inability to accurately report the basis of their decision making, the analyses of responses to the free-recall basis of

verdict question in Study 2 were exploratory in nature. It was tentatively predicted that, for the incriminating and exonerating evidence conditions (where systematic processing may be increased), there may be a greater number of reasons for verdict regarding the evidence and testimony of the suspect, and a lower number of behavioural reasons reported compared to the neutral evidence condition (where increased heuristic bias may occur). Furthermore, it was predicted that in each of the evidence conditions, there may be a greater number of behavioural reasons provided by those who viewed ASD behaviour compared to non-ASD behaviour, and that this effect may be largest for the neutral evidence condition.

Study 2a Method

Participants and Design

The 30-minute study was conducted online using the program Mechanical Turk. For Study 2a, and all subsequent studies within this thesis that used Mechanical Turk for data collection, the online sample consisted of participants from the United States, Canada, the United Kingdom, Australia and New Zealand. A 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) between-subjects design was applied, with participants randomly allocated to one of six conditions. This differed from Study 1 through the addition of the evidence manipulation and the removal of the low intensity ASD behaviour condition. Within Study 2, participants were randomised to view one of two behaviour conditions, either viewing non-ASD behaviours or high intensity ASD behaviours (referred to as only "ASD behaviours" within the subsequent sections of this thesis). The latter was used because of its more decisive effects (cf. the low intensity condition) in Study 1.

Data were collected online from 269 participants in the United States. Participants received $3 for their participation. This was in line with the Mechanical Turk recommended payment rate of 10 cents per minute. Similarly to the Study 1 method, with the aim to

increase motivation, participants were told they would receive $2.50 for their participation and could receive an additional amount of up to 50 cents if they determined the suspect's guilt accurately and quickly in comparison to the average time taken by other participants (with all participants receiving the additional amount for a total payment of $3). Attention checks placed within the study after each video section asked participants questions pertaining to both the visual and auditory content of the section they just viewed (see Appendix E). Participants were excluded for failing any one of these eight attention checks within the study (n = 69); thus, analyses were based on N = 200 (107 male) with an age range from 20 to 70 (M = 38.11, SD = 10.47).

Materials

Written evidence. The manipulation of evidence was provided in the form of a short written summary (see Appendix F). This summary described that multiple home robberies had occurred and that there were several men suspected of being involved. The summary also relayed the conclusions of a fingerprint expert regarding whether the prints of a gun found at one of the crime scenes matched those of the suspect who was going to be interviewed. The information written about the crime was the same for each condition; however, there was a small wording difference between the conditions for the conclusion of the fingerprint expert. For example, for the incriminating condition the expert was described as concluding that there was a strong chance the prints matched the suspect; in the exonerating condition there was a weak chance they matched; and for the neutral condition it was described as being unclear whether they were a match or not.

A five-minute online pilot study was conducted to test whether the evidence manipulation was successful, looking at whether perceptions of guilt were significantly different for each level of evidence. Data were collected from 119 participants using the online program Mechanical Turk. An attention check was included which involved a question

regarding the content of the evidence summary, with five participants failing this and being excluded from further analyses. Therefore, analyses were based on 114 participants (74 male) with an age range from 19 to 60 ($M = 33.69$, $SD = 9.78$), with 36 reading the incriminating evidence, 38 the exonerating, and 40 neutral.

Pilot study participants were randomised to read one of the three versions of the crime summary. After reading this, they were instructed to rate the suspect's likely guilt on a six-point scale, with higher scores indicating a greater likelihood of guilt. A one-way ANOVA revealed a significant main effect of evidence type, $F(2, 111) = 25.08$, $p < .001$, $\eta^2 = .263$, 95% CI [.166, .360]. Tukey post-hoc tests revealed that the suspect was rated as more likely guilty when participants were provided with incriminating evidence ($M = 4.61$, $SD = 0.80$), compared to exonerating ($M = 3.00$, $SD = 1.32$), $p < .001$, $d = 1.47$, 95% CI [0.94, 1.96], and neutral evidence ($M = 4.03$, $SD = 0.77$), $p = .031$, $d = 0.74$, 95% CI [0.27, 1.20]. Additionally, higher ratings of guilt were given when the evidence was neutral compared to exonerating, $p < .001$, $d = 0.96$, 95% CI [0.48, 1.42]. It was concluded that the crime summary was a sound manipulation of evidence direction.

Procedure

The Study 2a procedure was similar to Study 1, with the same ratings for measures (i.e., appropriateness, negative affect, credibility, suspiciousness, likely guilt and memory report) obtained in the same order. However, there were several differences: the evidence manipulation was introduced before the suspect interview, attention checks followed each set of ratings, and only the first three four-minute parts of the suspect interview were shown to participants instead of the full five four-minute parts of the interview as in Study 1. The emergence of the behaviour effect early in the interview in Study 1 (from time point one of the interview) rendered it unnecessary to show the full video in order to assess any moderating effect of evidence upon the behaviour effect.

After the study introduction and the initial negative affect rating, participants read through the short case background, randomly assigned to read either the incriminating, exonerating or neutral details. Following this they completed a simple attention check question about the type of crime that was being investigated and were excluded from the study if they failed this question. Then they began viewing the suspect interview, randomly assigned to view the suspect display either ASD or non-ASD behaviours. Participants viewed three parts of the interview and made ratings of negative affect, credibility, suspiciousness, memory report, likely guilt and entering a guilty verdict (which they could decide to enter as final), and confidence in that verdict, after each part of the interview. A total of eight additional attention checks were included (see Appendix E), with these placed after each part of the suspect interview to assess whether the participant was both listening and watching the interview. These involved questions regarding the content of the interviewee statement as well as questions regarding the appearance of the interview room. After the final set of ratings were made at the end of the interview participants were asked to rate the behavioural appropriateness of the suspect's behaviours.

Study 2a Results

Effect of Behaviour and Evidence upon Suspect Impressions

A mixed MANOVA was carried out to assess the main effects of the behaviour and evidence conditions, as well as their interaction, for each of the ratings made across all three time points of the interview. See Tables 15, 16 and 17 for the means and inferential statistics associated with these main effects. The Study 1 main effects were replicated for behaviour (see Table 15), with those who viewed ASD behaviour more likely to interpret the suspect as less credible, more suspicious, more likely guilty, and as having a poorer memory report than those who viewed non-ASD behaviours. Similar to Study 1, there was also no main effect of behaviour for feelings of negative affect. In a separate independent samples *t*-test for the

single appropriateness rating, those who viewed ASD behaviour rated the suspect as less behaviourally appropriate than those who viewed non-ASD behaviour.

Table 15

Means (and standard deviation), Cohen's d effect sizes [and 95% confidence intervals], t-test and univariate F-test results for the main effect of behaviour

	Behaviour			
Measure	Non-ASD	ASD	Effect size [CI]	Inferential test
Appropriateness	3.97 (0.73)	3.05 (0.72)	1.27 [0.96, 1.57]	$t(198) = 8.89$***
Credibility	4.16 (0.97)	3.56 (1.05)	0.59 [0.31, 0.87]	$F(1, 194) = 17.61$, $\eta^2 = .083$ [.024, .164]***
Suspiciousness	2.47 (0.78)	3.36 (0.77)	1.15 [0.84, 1.44]	$F(1, 194) = 63.26$, $\eta^2 = .245$ [.147, .339]***
Likely guilt	2.94 (1.18)	3.61 (1.29)	0.54 [0.26, 0.82]	$F(1, 194) = 14.06$, $\eta^2 = .067$ [.015, .143]***
Memory report	4.40 (0.82)	4.06 (0.93)	0.39 [0.11, 0.67]	$F(1, 194) = 7.32$, $\eta^2 = .036$ [.003, .100]**
Negative affect	1.79 (0.95)	2.02 (1.02)	0.23 [-0.05, 0.51]	$F(1, 194) = 2.62$, $\eta^2 = .013$ [.000, .061]

Note. Each scale ranged from ratings of 1-6. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 16

Univariate F-test results for the main effect of evidence upon suspect impressions

	ANOVA			
Measure	*df*	*F*	*p*	η^2 [95% CI]
Appropriateness	2, 194	0.69	.505	.007 [.000, .040]
Credibility	2, 194	0.12	.885	.001 [.000, .015]
Suspiciousness	2, 194	0.64	.530	.005 [.000, .029]
Likely guilt	2, 194	0.17	.845	.002 [.000, .018]
Memory report	2, 194	0.20	.823	.002 [.000, .021]
Negative affect	2, 194	0.35	.709	.004 [.000, .028]

Table 17

Means (and standard deviations) for the main effect of evidence and Cohen's d effect size [and 95% confidence intervals] comparing each level of evidence for each of the measures

			Evidence	
Measure	Evidence	*M* (*SD*)	2	3
Appropriateness				
	1. Incriminating	3.57 (0.93)	0.00 [-0.35, 0.35]	0.17 [-0.17, 0.51]
	2. Exonerating	3.57 (0.78)		0.18 [-0.15, 0.52]
	3. Neutral	3.42 (0.86)		
Credibility				
	1. Incriminating	3.88 (1.10)	0.03 [-0.32, 0.38]	0.07 [-0.26, 0.41]
	2. Exonerating	3.91 (1.01)		0.11 [-0.23, 0.44]
	3. Neutral	3.80 (1.06)		
Suspiciousness				
	1. Incriminating	2.86 (0.93)	0.04 [-0.31, 0.38]	0.17 [-0.17, 0.51]
	2. Exonerating	2.83 (0.78)		0.22 [-0.12, 0.55]
	3. Neutral	3.02 (0.95)		
Likely guilt				
	1. Incriminating	3.24 (1.36)	0.03 [-0.32, 0.38]	0.09 [-0.25, 0.43]
	2. Exonerating	3.20 (1.20)		0.13 [-0.21, 0.46]
	3. Neutral	3.36 (1.28)		
Memory report				
	1. Incriminating	4.29 (0.87)	0.05 [-0.29, 0.40]	0.13 [-0.21, 0.47]
	2. Exonerating	4.24 (0.99)		0.07 [-0.27, 0.40]
	3. Neutral	4.18 (0.83)		
Negative affect				
	1. Incriminating	1.93 (1.05)	0.12 [-0.23, 0.46]	0.03 [-0.37, 0.31]
	2. Exonerating	1.82 (0.85)	0.14 [-0.19, 0.48]	
	3. Neutral	1.96 (1.07)		

There was, however, no main effect of evidence condition upon any of the participant ratings (see Tables 16 and 17). As the evidence manipulation had a strong effect within the Study 2a pilot, it was surprising that there was no main effect of evidence for Study 2a.

Within the Study 2a pilot, however, this evidence was not viewed in conjunction with the suspect interview. It was possible that, once participants began viewing the suspect interview, they were not able to relate that interview to the written format of evidence that was presented to them before the interview. In turn, they may have focused more on the information in the suspect interview, thereby contributing to the absence of a main effect of evidence in either behaviour condition (see the MANOVA results separately for each behaviour condition in Appendix G). The information provided for the evidence manipulation was short, presented in written form, and manipulated only one sentence; in contrast, the suspect interview was provided in video form for a duration of approximately of 15 minutes. Given the failed manipulation of evidence within Study 2a, I conducted no further hypothesis testing and developed a new evidence manipulation that might be more easily related to the suspect interview.

Study 2b Method

Participants and Design

The desired sample size for Study 2b was increased from Study 1 due to the addition of the evidence manipulation, which doubled the number of cells within the design from three to six. Thus, a sample of approximately 500 participants was desirable to achieve similar power to Study 1. Data were collected from 1193 participants using the online program Mechanical Turk. The study took approximately 45 minutes to complete and participants received $4.50 for their participation ($4 and an additional 50 cents if they accurately and quickly determined the suspect's guilt, with all participants receiving the full amount of $4.50). After the first attention check, 217 participants were excluded for failing this, and a further 407 were excluded from analyses for failing any one of the eight subsequent attention checks placed during the study. Final analyses were based on 569 participants (284 male) with an age range from 18 to 71 years (M = 37.01, SD = 11.20). Participants were randomly

allocated to the six cells of the design, see Table 18 for the number of participants in each cell.

The design of the study was identical to Study 2a, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) between-subjects design with randomisation to conditions. The only difference was that, instead of being randomised to view just written evidence, participants were also randomised to view a video interview with a fingerprint expert and a bystander at a party the suspect recently attended, with those interviewees relaying either incriminating, exonerating or neutral information. There were an additional two attention checks included at the end of the suspect interview to assess participant memory for the fingerprint and bystander evidence (see Appendix E).

Table 18

Number of participants in each level of the behaviour and evidence conditions

	Evidence			
Behaviour	Incriminating	Exonerating	Neutral	Total
Non-ASD	85	102	98	285
ASD	112	88	84	284
Total	197	190	182	569

Materials

Video evidence. Three versions of two videos (six in total) were filmed to make up the new evidence manipulation: three with a male actor playing a fingerprint expert and three with a female actor playing a bystander from one of the parties that the suspect talks about attending during his interview. These were filmed in the same room as the suspect interview, with the same interviewer's voice to enhance experimental control and to increase the possibility that participants were able to link this evidence and the suspect interview. This method may not be considered as realistic in terms of a real-world police investigation, given

that police would be unlikely to record interviews with fingerprint experts or witnesses. Investigators would, however, be likely to conduct witness interviews in person, or discuss the results of a fingerprint analysis with the expert. Thus, presenting this information to participants (who were acting as police investigators) as a recorded interview, as opposed to a small amount of written information as in Study 2a, aimed to enhance the realism of the investigation for participants.

During the interview the fingerprint expert spoke about the same details of the crime in all three versions but changed what he relayed regarding whether the prints matched the suspect depending on the evidence manipulation (see Appendix H for the transcript). He explained in each version that he had ten years of experience in his work and described how he assesses whether fingerprints match. He then described that there were several guns found at one of the crime scenes and multiple prints were found that were unique to four different people (with two of those being matched to the suspect's housemates, and one to the already arrested ringleader of the robberies). Then, within the incriminating interview he concluded that the fourth set of prints were a highly likely match to the suspect. In the exonerating condition he indicated they were highly unlikely to match the suspect. In the neutral condition he explained it wasn't able to be determined whether they matched or not because of the poor quality of the prints. Each version of the fingerprint expert's interview went for approximately five-minutes.

Within the bystander interview, she spoke about attending a house party with the suspect, who was her acquaintance, and described the suspect interacting at the party with the ringleader who was arrested for the robberies (see Appendix I for the transcript). The way in which she described their interaction differed depending on the evidence manipulation. Within the incriminating condition she relayed that the suspect was good friends with the ringleader and were together for most of the party. In the exonerating condition she said they

were not good friends and were not seen together at the party. In the neutral condition she said she was unsure whether they were friends or not, and did not remember whether she saw them together. Each interview with the bystander was approximately two-minutes in duration.

A 15-minute online pilot study was conducted to test the new manipulation of interview evidence to be included in Study 2b. Data were collected from 122 participants using the online program Mechanical Turk. Participants were required to read the same crime description from Study 2a and were randomly assigned to a description that was either incriminating, exonerating, or neutral in nature. After reading the description, participants viewed the interview with the fingerprint expert relaying the similar information from the description depending on which condition the participant was in. Participants were then instructed to rate the suspect's likely guilt on a six-point scale, with higher scores indicating a greater likelihood of guilt. Following this, participants viewed the interview with the bystander. Participants, maintaining the same condition they were assigned to from the previous interview, viewed the bystander relay either incriminating, exonerating or neutral information. Participants were then again asked to indicate their impression of the suspect's likely guilt.

An attention check was included after the initial crime description asking the type of crime that was being investigated, with 22 participants failing this and being excluded from further analyses. Additional attention checks were included after each of the evidence videos which involved a question regarding the content of the interviewee statement. Participants were excluded if they failed any one of these attention checks (n = 30), with pilot analyses then based on 70 participants (46 male) with an age range from 20 to 65 (M = 33.69, SD = 9.12), with 28 viewing incriminating, 22 viewing exonerating, and 20 viewing neutral evidence.

A one-way ANOVA revealed a significant main effect of evidence type for the first question regarding likely guilt taken after viewing the interview with the fingerprint expert, $F(2, 67) = 79.57$, $p < .001$. Games-Howell post-hoc tests revealed that the suspect was rated as more likely guilty when participants viewed the incriminating fingerprint evidence ($M = 5.04$, $SD = 0.96$), compared to exonerating ($M = 1.50$, $SD = 0.67$), $p < .001$, $d = 4.19$, 95% CI [3.14, 5.10], and neutral evidence ($M = 3.65$, $SD = 1.27$), $p = .001$, $d = 1.27$, 95% CI [0.62, 1.87]. Additionally, higher ratings of guilt were given when the evidence was neutral compared to exonerating, $p < .001$, $d = 2.15$, 95% CI [1.35, 2.86].

A one-way ANOVA on likelihood of guilt revealed a significant main effect of evidence type after the second guilt likelihood question that followed both the fingerprint expert and the bystander, $F(2, 67) = 82.96$, $p < .001$. Games-Howell post-hoc tests revealed that the suspect was rated as more likely guilty when participants viewed the incriminating evidence ($M = 4.82$, $SD = 0.95$), compared to exonerating ($M = 1.36$, $SD = 0.58$), $p < .001$, $d = 4.28$, 95% CI [3.21, 5.20], and neutral evidence ($M = 3.60$, $SD = 1.23$), $p = .002$, $d = 1.14$, 95% CI [0.50, 1.73]. Higher ratings of guilt were given when the evidence was neutral compared to exonerating, $p < .001$, $d = 2.37$, 95% CI [1.54, 3.11].

Taken together, these data provided support for the effectiveness of the manipulation, with clear and very strong differences in the predicted direction for the influence of the evidence type presented to participants. Although the mean for the exonerating condition may suggest a floor effect (with the mean centring around a 1, which was the lowest value of the guilt scale that ranged from 1-6), there was still room for judgments to become more likely guilty as a result of ASD behaviour. Therefore, these patterns suggested the effect of the evidence manipulation could be tested whilst not being so strong as to prevent the behaviour manipulation from the opportunity to have an effect.

Procedure

The procedure for Study 2b was the same as Study 2a, with the same ratings made in the same order. Instead of just written evidence, participants were randomly assigned to one of three video evidence interview conditions, viewing a fingerprint expert and a bystander provide either incriminating, exonerating or neutral evidence regarding the suspect. After each evidence interview participants rated the suspect's level of guilt. Following this, participants viewed three 4-minute sections of the suspect interview, with participants randomised to view either non-ASD or ASD behaviours. At the end of the interview, after the final set of ratings were made, participants were asked two questions to assess their attention regarding the evidence interviews they viewed at the beginning of the study. This was to assess how likely they were to maintain memory for the evidence after viewing the entire suspect interview. After memory for evidence questions, participants were asked to respond to an open-ended question to indicate the factors on which they based their final verdict. They were given the option to list from one up to ten different reasons.

Pilot Study 2b Results

A 45-minute online pilot study was conducted to test whether the main effect of the video evidence manipulation upon guilt ratings was maintained after watching the suspect interview; this pilot study only examined the effect of evidence when viewing non-ASD behaviours. Data were collected from 118 participants using the online program Mechanical Turk.

An attention check, asking the type of crime that was being investigated, was included after the initial crime description and before the evidence interviews; 18 participants failed this check and were excluded from further analyses. Additional attention checks regarding the content of the interviewee statement were included after each of the suspect videos, with 22 participants failing any one of these checks and being excluded from further analyses. The

following analyses were therefore based on 78 participants (40 male) with an age range from 19 to 71 (M = 39.72, SD = 29.02), with 25 viewing incriminating, 26 viewing exonerating, and 27 viewing neutral evidence.

One-way MANOVA results revealed a significant main effect of evidence type for ratings of likely guilt taken after both the fingerprint expert and bystander evidence manipulation, and all parts of the suspect interview (see Table 19 for descriptive statistics and ANOVA results).

Table 19

Mean guilt ratings (standard deviation) and MANOVA results for the main effect of evidence

	Evidence Type			ANOVA		
Time point	Incriminating	Exonerating	Neutral	*df*	*F*	η^2 [95% CI]
Post-evidence	4.44 (1.12)	1.73 (0.92)	2.96 (0.94)	2, 75	47.34	.405 [.287, .475]***
Time one	4.24 (1.30)	1.62 (0.64)	2.89 (1.40)	2, 75	32.48	.358 [.222, .446]***
Time two	4.28 (1.51)	2.27 (1.34)	4.22 (1.48)	2, 75	16.27	.257 [.110, .371]***
Time three	4.08 (1.82)	2.19 (1.23)	3.93 (1.77)	2, 75	10.69	.197 [.059, .320]***

Note. * p <.05, ** p <.01, *** p <.001

For ratings taken after the evidence manipulation, post-hoc testing (displayed in Table 20) revealed the suspect was rated as more likely guilty when participants viewed the incriminating evidence interviews compared to exonerating and neutral, with higher ratings of guilt for neutral compared to exonerating. These same effects were maintained at time point one after watching the first part of the suspect interview. However, there was no difference in ratings of likely guilt between the incriminating and neutral evidence conditions at time points two and three. An increase over the second and third parts of the suspect interview in mean ratings of likely guilt for those who were in the neutral evidence condition narrowed the difference between the neutral and incriminating conditions. Nevertheless, as

expected, at time points two and three those who viewed exonerating evidence rated the suspect as less likely guilty than those who viewed incriminating and neutral evidence.

Table 20

Cohen's d effect size [and 95% confidence intervals] comparing mean guilt ratings between each level of evidence

		Evidence	
Measure	Evidence	2	3
Post-evidence			
	1. Incriminating	2.65 [1.86, 3.36]***	1.44 [0.81, 2.02]***
	2. Exonerating		1.32 [0.71, 1.90]***
	3. Neutral		
Time one			
	1. Incriminating	2.57 [1.80, 3.27]***	1.00 [0.41, 1.56]**
	2. Exonerating		1.16 [0.56, 1.72]***
	3. Neutral		
Time two			
	1. Incriminating	1.41 [0.78, 2.00]***	0.04 [-0.50, 0.58]
	2. Exonerating		1.38 [0.76, 1.96]***
	3. Neutral		
Time three			
	1. Incriminating	1.22 [0.61, 1.80]***	0.08 [-0.46, 0.63]
	2. Exonerating		1.14 [0.54, 1.70]***
	3. Neutral		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Examination of participants' recall at the end of the study for the content of the fingerprint and bystander evidence revealed that, of the 78 participants who passed all attention checks during the suspect interview, 18 failed those questions regarding the content of the initial evidence interviews, with those who failed coming from the incriminating (n = 8), exonerating (n = 5) and neutral conditions (n = 5). Given this was only approximately 23% of the participants who had forgotten information from the initial evidence, these pilot

study results provide support for a general maintenance of the effect of the evidence manipulation once participants began watching the suspect interview.

Study 2b Results

Violation of Behavioural Expectations

To examine how behaviour and evidence affected the degree to which participant's expectations were violated, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) factorial ANOVA was carried for behavioural appropriateness ratings made at the end of the interview. Table 21 presents the mean appropriateness ratings for each behaviour and evidence condition. This revealed significant main effects of both behaviour $F(1, 563) = 251.54$, $p < .001$, $\eta^2 = .295$, 95% CI [.238, .349], and evidence conditions, $F(2, 563) = 10.50$, $p < .001$, $\eta^2 = .024$, 95% CI [.007, .046]. There was no significant interaction between the behaviour and evidence conditions, $F(2, 563) = 0.03$, $p = .968$, $\eta^2 = .000$, 95% CI [.000, .000].

Table 21

Mean (and standard deviation) ratings of impression of suspects' behavioural appropriateness

	Evidence			
Behaviour	Incriminating	Exonerating	Neutral	Total
Non-ASD	3.81 (0.76)	4.12 (0.65)	3.98 (0.66)	3.98 (0.70)
ASD	2.85 (0.74)	3.19 (0.70)	3.05 (0.70)	3.02 (0.73)
Total	3.26 (0.89)	3.69 (0.82)	3.55 (0.82)	3.50 (0.86)

Consistent with expectancy violations theory and the results from Study 1, Tukey post-hoc testing revealed that appropriateness ratings made by those who viewed ASD behaviours were significantly lower than those who viewed non-ASD behaviours, $p < .001$, $d = 1.34$, 95% CI [1.16, 1.52]. Additionally, those who viewed incriminating evidence gave

lower ratings of appropriate behaviour than those who viewed exonerating, $p < .001$, $d = 0.50$, 95% CI [0.30, 0.70], and neutral evidence, $p < .001$, $d = 0.34$, 95% CI [0.13, 0.54]. However, there was no difference in behaviour ratings between the exonerating and neutral evidence conditions, $p = .139$, $d = 0.17$, 95% CI [-0.03, 0.37]. Thus, compared with exonerating and neutral evidence, incriminating evidence led to suspect behaviours being judged as more inappropriate.

Effect of Behaviour and Evidence on Impressions of the Suspect and Feelings of Negative Affect Across the Interview

To examine whether the negative effect of ASD behaviour on evaluations of the suspect were weaker in the presence of decisive evidence, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (time point: 1, 2, 3) mixed MANOVA was carried out to assess how the behaviour and evidence conditions influenced participants' impressions of the suspect and their own negative affect, and how these impressions changed over the course of the interview. Multivariate testing showed a significant effect of behaviour, $F(5, 559) = 39.33$, $p < .001$, Wilks' $\Lambda = .740$, evidence, $F(10, 1118) = 30.39$, $p < .001$, Wilks' $\Lambda = .618$, and time $F(10, 554) = 36.91$, $p < .001$, Wilks' $\Lambda = .600$, as well as a significant interaction between behaviour and time, $F(10, 554) = 9.29$, $p < .001$, Wilks' $\Lambda = .856$, and evidence and time $F(20, 1108) = 2.64$, $p < .001$, Wilks' $\Lambda = .911$. Importantly, in contrast to hypotheses, there was no significant interaction between behaviour and evidence, $F(10, 1118) = 1.60$, $p = .102$, Wilks' $\Lambda = .972$, or between behaviour, evidence and time, $F(20, 1108) = 1.35$, $p = .140$, Wilks' $\Lambda = .953$. See Table 22 for the univariate testing for the significant main and interaction multivariate effects for each impression measure.

Table 22

Univariate tests for each measure for the significant multivariate main effect and interaction effects

		Univariate *F*-test		
Measure	IV	*df*	*F*	η^2 [95% CI]
Credibility				
	Behaviour	1, 563	23.53	.031 [.011, .058]***
	Evidence	2, 563	89.24	.204 [.154, .251]***
	Time[3]	1.76, 988.38	10.73	.018 [.005, .037]***
	Behaviour × time	1.76, 988.38	3.75	.006 [.000, .019]*
	Evidence × time	3.51, 988.38	6.54	.025 [.007, .043]***
Suspiciousness				
	Behaviour	1, 563	138.04	.175 [.126, .225]***
	Evidence	2, 563	41.74	.099 [.062, .138]***
	Time	1.81, 1016.07	52.39	.079 [.052, .109]***
	Behaviour × time	1.81, 1016.07	37.16	.056 [.033, .082]***
	Evidence × time	3.61, 1016.07	4.14	.012 [.002, .024]**
Likely guilt				
	Behaviour	1, 563	17.14	.019 [.005, .040]***
	Evidence	2, 563	155.87	.285 [.236, .328]***
	Time	1.66, 934.70	47.10	.075 [.048, .104]***
	Behaviour × time	1.66, 934.70	2.61	.004 [.000, .013]
	Evidence × time	3.32, 934.70	7.61	.024 [.008, .040]***
Memory report				
	Behaviour	1, 563	9.85	.015 [.002, .039]**
	Evidence	2, 563	34.86	.101 [.060, .146]***
	Time	1.84, 1033.89	2.19	.004 [.000, .013]
	Behaviour × time	1.84, 1033.89	0.22	.000 [.000, .004]
	Evidence × time	3.67, 1033.89	4.75	.017 [.003, .031]**
Negative affect				
	Behaviour	1, 563	0.51	.001 [.000, .012]
	Evidence	2, 563	4.66	.016 [.001, .039]*
	Time	1.92, 1078.18	17.25	.029 [.012, .050]***
	Behaviour × time	1.92, 1078.18	0.38	.001 [.000, .005]
	Evidence × time	3.83, 1078.18	3.85	.013 [.001, .026]**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Main effect of behaviour and evidence conditions. Compared to participants who viewed non-ASD suspect behaviours, the main effect of behaviour revealed that those who viewed ASD behaviours rated the suspect as less credible, more suspicious and more likely guilty (see Table 23).

[3] For the within subjects variable, Mauchly's Test of Sphericity indicated that sphericity was violated, ranging from $W(2) = 0.80$ to 0.96, $p < .001$. Since sphericity was violated, the Greenhouse-Geisser adjusted values were examined for all effects that included time point

Table 23

Mean impression ratings (standard deviation) and Cohen's d effect size [and 95% confidence intervals] for the main effect of behaviour

	Behaviour		
Rating scale	Non-ASD	ASD	*d* [95% CI]
Credibility	4.01 (1.13)	3.50 (1.17)	0.44 [0.28, 0.61]***
Suspiciousness	2.53 (0.84)	3.39 (0.88)	1.00 [0.82, 1.17]***
Likely Guilt	3.13 (1.48)	3.70 (1.47)	0.39 [0.22, 0.55]***
Memory Report	4.41 (0.91)	4.13 (0.87)	0.31 [0.15, 0.48]**
Negative Affect	2.09 (1.04)	2.17 (1.07)	0.08 [-0.09, 0.24]

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

This replicated the behaviour effect found in Study 1. Additionally, as in Study 1, there was no effect of behaviour upon negative affect[4]. Separate paired samples *t*-tests indicated that for both the ASD, $t(283) = 5.69$, $p < .001$, $d = 0.20$, 95% CI [0.03, 0.36], and non-ASD conditions, $t(284) = 4.24$, $p < .001$, $d = 0.15$, 95% CI [0.01, 0.32], there was a similar increase in negative affect from baseline (ASD: $M = 1.97$, $SD = 0.97$, non-ASD: $M = 1.94$, $SD = 0.90$) to affect reported during the interview (ASD: $M = 2.17$, $SD = 1.07$, non-ASD: $M = 2.09$, $SD = 1.04$). This was in contrast to Study 1 where there was only an increase in negative affect for those who viewed ASD behaviour. Furthermore, in contrast to Study 1, the presence of ASD behaviour led to significantly more negative impressions of the suspect's memory report in Study 2b. This may have been due to the introduction of evidence, regardless of evidence type, creating a greater emphasis on assessing the quality of the memory report compared to Study 1. This might have then led to an increased focus on those behaviours informing impressions of this report.

[4] Again, a separate *t*-test analysis was carried out to assess whether there was a behaviour effect for the low arousal negative affect items. However, again, there was no significant effect of behaviour upon low arousal negative affect, with no difference between ASD behaviour ($M = 2.20$, $SD = 1.10$) and non-ASD behaviour ($M = 2.12$, $SD = 1.05$), $t(567) = -0.95$, $p = .345$, $d = 0.07$, 95% CI [-0.09, 0.24].

Table 24

Mean impression ratings (standard deviation) and Cohen's d effect size [and 95% confidence intervals] comparing the difference between each level of evidence for each measure

			Evidence	
Measure	Evidence	*M* (*SD*)	2	3
Credibility				
	1. Incriminating	3.01 (1.05)	1.38 [1.16, 1.60]***	0.83 [0.62, 1.04]***
	2. Exonerating	4.41 (0.97)		0.53 [0.32, 0.73]***
	3. Neutral	3.88 (1.05)		
Suspiciousness				
	1. Incriminating	3.41 (0.82)	0.92 [0.71, 1.13]***	0.65 [0.44, 0.85]***
	2. Exonerating	2.59 (0.95)		0.28 [0.07, 0.48]**
	3. Neutral	2.85 (0.92)		
Likely guilt				
	1. Incriminating	4.57 (1.17)	1.78 [1.54, 2.01]***	1.15 [0.93, 1.37]***
	2. Exonerating	2.42 (1.25)		0.63 [0.42, 0.84]***
	3. Neutral	3.20 (1.21)		
Memory report				
	1. Incriminating	3.90 (0.89)	0.86 [0.65, 1.07]***	0.45 [0.25, 0.65]***
	2. Exonerating	4.64 (0.82)		0.43 [0.22, 0.63]***
	3. Neutral	4.29 (0.84)		
Negative affect				
	1. Incriminating	2.29 (1.09)	0.30 [0.10, 0.50]**	0.16 [-0.04, 0.36]
	2. Exonerating	1.97 (1.04)		0.14 [-0.06, 0.35]
	3. Neutral	2.12 (1.03)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Tukey post-hoc analyses showed that, compared to those who viewed exonerating or neutral evidence, those who viewed incriminating evidence rated the suspect as less credible, more suspicious, more likely guilty, and as having a poorer memory report (see Table 24). Additionally, those who viewed the exonerating evidence rated the suspect as more credible, less suspicious, less likely guilty, and as having a better memory report than those who viewed the neutral evidence. For negative affect, there was no difference between the neutral and incriminating, and the neutral and exonerating conditions; however, those who viewed the incriminating evidence reported greater negative affect than those in the exonerating group.

Given the script (i.e., the memory report) was the same for each evidence condition, the difference in ratings of memory report is likely due to the information that participants received beforehand when viewing the evidence. When rating the memory report, participants were asked to rate the consistency of the suspect's memory report. With the introduction of evidence, participants could now compare the consistency of details provided by the suspect to those provided by the fingerprint expert and bystander. Within the incriminating condition the suspect contradicts what is said by the expert and bystander, whereas in the exonerating condition the suspect confirms what is relayed in the evidence. The neutral condition neither confirms nor contradicts as there was no definitive information provided by the expert or bystander. Thus, this difference in memory report ratings between conditions is not surprising.

Changes in impressions across the interview. The univariate tests for the main effect of time point were significant for all measures (except for memory report) and indicated upward and downward fluctuations across the interview (see Table 25). Given the nature of the information provided by the suspect during each of the three sections of the interview these fluctuations in ratings may simply reflect those variations.

Table 25

Mean impression ratings (standard deviations) for each measure at each time point

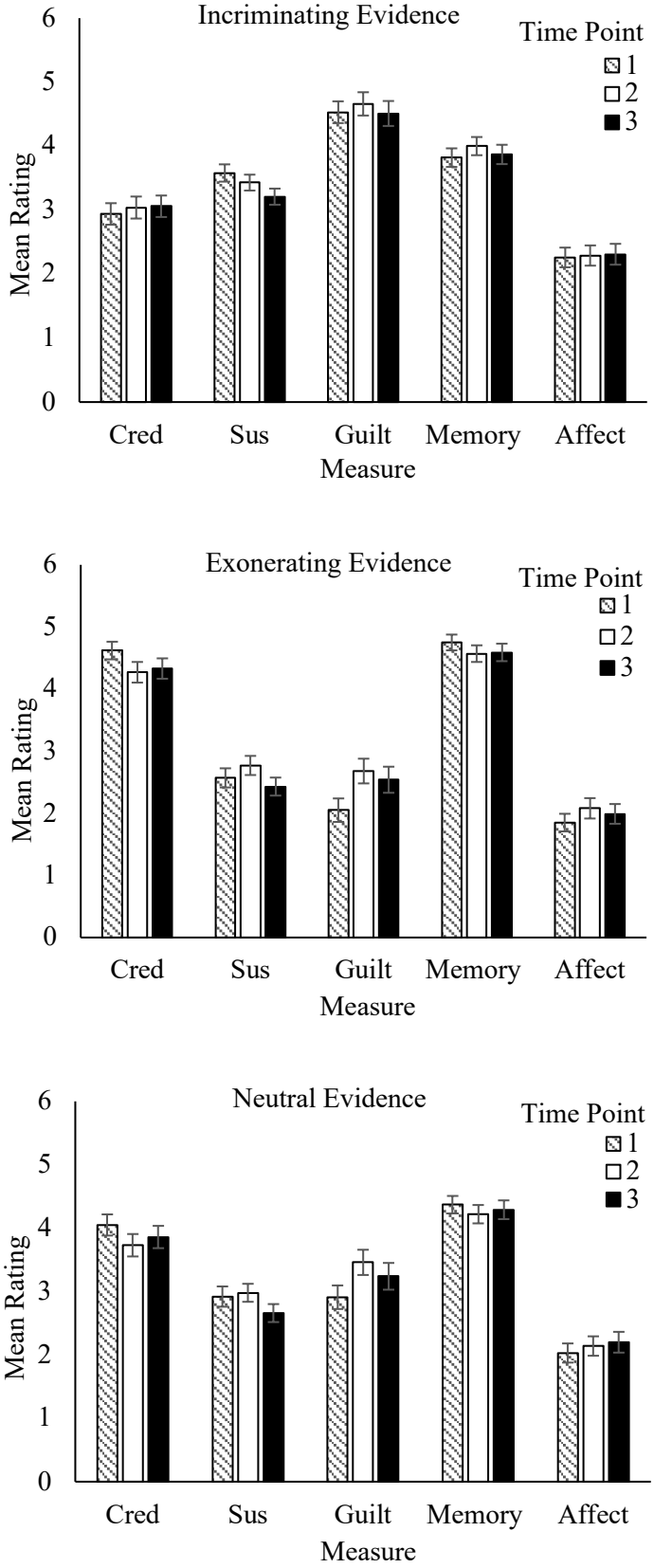
	Time point		
Measure	1	2	3
Credibility	3.85 (1.32)	3.67 (1.30)	3.74 (1.30)
Suspiciousness	3.03 (1.13)	3.07 (1.03)	2.77 (1.02)
Likely Guilt	3.18 (1.64)	3.62 (1.58)	3.44 (1.66)
Memory Report	4.31 (1.04)	4.26 (1.01)	4.24 (1.07)
Negative Affect	2.05 (1.06)	2.17 (1.12)	2.17 (1.15)

These main effects of time point were qualified by significant interactions between time point and evidence for all measures (see Figures 3, 4 and 5), and a significant interaction between time point and behaviour for credibility and suspiciousness. The means, repeated

measures ANOVA and simple effects pairwise comparison results (displayed in Tables 26 and 27) informed the following conclusions.

Interaction between evidence and time point. For those who viewed incriminating evidence, impressions of credibility, likely guilt and negative affect remained the same across the interview. However, for exonerating and neutral evidence, these impressions became more unfavourable over the course of the interview. Additionally, impressions of suspiciousness became more favourable for all evidence conditions, with these improving to a greater degree for incriminating and neutral evidence compared to exonerating. Over the interview there were poorer impressions of memory report formed by those in the exonerating condition, but more favourable memory report impressions formed for the incriminating condition. These patterns for the effect of evidence upon impression ratings across the interview may indicate that, for those who viewed incriminating evidence, a ceiling effect occurred. The more negative impressions of the suspect held by participants, as a result of incriminating evidence, may not have allowed for those ratings to become any more negative across the interview as they did for the exonerating and neutral evidence conditions.

Interaction between behaviour and time point. For those who viewed non-ASD behaviour, impressions of credibility deteriorated over the interview, whilst those who viewed ASD behaviour maintained the same impression of credibility throughout. Ratings of suspiciousness became increasingly more favourable for the ASD group, whereas for the non-ASD behaviour impressions of suspiciousness fluctuated across time points. Perhaps more positive impressions of credibility at the beginning of the interview for the non-ASD group meant there was more room for credibility to deteriorate. Conversely, perhaps more negative impressions of suspiciousness for the ASD group at the beginning of the interview allowed for greater development of more favourable impressions of suspiciousness.



Figures 3-5. Column graphs for mean impression ratings (with error bars that show 95% confidence intervals) at each time point for each evidence condition.

Table 26

Mean impression ratings (standard deviation) at each time point, and Cohen's d effect size [95% confidence intervals] and inferential statistics with η^2 effect size [95% confidence intervals] comparing the effect of time point at each level of evidence

Evidence	Time point	*M* (*SD*)	Time point 2	Time point 3	ANOVA
Credibility					
Incriminating					*F*(1.77, 345.87) = 1.57, η^2 =.008 [.000, .030]
	1	2.94 (1.20)	0.08 [-0.12, 0.28]	0.10 [-0.10, 0.30]	
	2	3.04 (1.23)		0.02 [-0.18, 0.21]	
	3	3.06 (1.20)			
Exonerating					*F*(1.77, 333.86) = 15.04, η^2 = .074 [.029, .126]***
	1	4.62 (1.00)	0.32 [0.12, 0.52]***	0.27 [0.07, 0.47]***	
	2	4.27 (1.17)		0.05 [-0.15, 0.25]	
	3	4.33 (1.15)			
Neutral					*F*(1.68, 304.87) = 9.66, η^2 = .051 [.014, .098]***
	1	4.05 (1.15)	0.27 [0.06, 0.48]***	0.16 [-0.05, 0.37]*	
	2	3.73 (1.22)		0.11 [-0.10, 0.31]*	
	3	3.86 (1.21)			
Suspiciousness					
Incriminating					*F*(1.74, 341.31) = 25.00, η^2 = .113 [.059, .171]***
	1	3.58 (0.97)	0.16 [-0.04, 0.36]**	0.40 [0.20, 0.59]***	
	2	3.43 (0.89)		0.25 [0.05, 0.44]***	
	3	3.21 (0.90)			
Exonerating					*F*(1.82, 344.19) = 17.35, η^2 = .084 [.036, .138]***
	1	2.57 (1.08)	0.19 [-0.02, 0.39]**	0.13 [-0.07, 0.33]*	
	2	2.77 (1.08)		0.32 [0.12, 0.53]***	
	3	2.43 (1.02)			
Neutral					*F*(1.70, 308.18) = 18.41, η^2 = .092 [.041, .149]***
	1	2.92 (1.10)	0.06 [-0.15, 0.26]	0.25 [0.04, 0.46]***	
	2	2.98 (0.98)		0.33 [0.12, 0.53]***	
	3	2.66 (0.98)			
Likely guilt					
Incriminating					*F*(1.64, 320.59) = 2.87, η^2 = .014 [.000, .043]
	1	4.53 (1.22)	0.10 [-0.09, 0.30]	0.02 [-0.18, 0.21]	
	2	4.66 (1.30)		0.11 [-0.09, 0.31]**	
	3	4.51 (1.40)			

Exonerating					$F(1.72, 325.34) = 33.98$, $\eta^2 = .152$ [.090, .216]***
	1	2.05 (1.33)	0.46 [0.26, 0.66]***	0.35 [0.14, 0.55]***	
	2	2.68 (1.40)		0.10 [-0.10, 0.30]*	
	3	2.54 (1.48)			
Neutral					$F(1.60, 289.81) = 22.69$, $\eta^2 = .111$ [.055, .171]***
	1	2.91 (1.28)	0.41 [0.21, 0.62]***	0.24 [0.03, 0.45]**	
	2	3.46 (1.37)		0.16 [-0.05, 0.36]***	
	3	3.24 (1.45)			
Memory report					
Incriminating					$F(1.84, 361.00) = 3.76$, $\eta^2 = .019$ [.000, .050]*
	1	3.82 (1.04)	0.17 [-0.02, 0.37]*	0.05 [-0.15, 0.24]	
	2	4.00 (1.02)		0.12 [-0.07, 0.32]*	
	3	3.87 (1.08)			
Exonerating					$F(1.83, 345.34) = 6.11$, $\eta^2 = .031$ [.004, .070]**
	1	4.75 (0.89)	0.20 [-0.01, 0.40]**	0.17 [-0.03, 0.37]*	
	2	4.57 (0.94)		0.02 [-0.18, 0.22]	
	3	4.59 (0.99)			
Neutral					$F(1.82, 329.92) = 2.62$, $\eta^2 = .014$ [.000, .044]
	1	4.37 (0.95)	0.15 [-0.05, 0.36]*	0.08 [-0.12, 0.29]	
	2	4.22 (1.00)		0.07 [-0.14, 0.27]	
	3	4.29 (1.02)			
Negative affect					
Incriminating					$F(1.76, 344.71) = 0.77$, $\eta^2 = .004$ [.000, .021]
	1	2.26 (1.10)	0.03 [-0.17, 0.22]	0.04 [-0.15, 0.24]	
	2	2.29 (1.13)		0.02 [-0.18, 0.21]	
	3	2.31 (1.17)			
Exonerating					$F(1.85, 348.82) = 14.46$, $\eta^2 = .071$ [.027, .123]***
	1	1.85 (1.00)	0.21 [-0.01, 0.41]***	0.13 [-0.07, 0.33]**	
	2	2.08 (1.15)		0.08 [-0.12, 0.28]*	
	3	1.99 (1.12)			
Neutral					$F(1.90, 344.46) = 8.36$, $\eta^2 = .044$ [.010, .089]***
	1	2.03 (1.04)	0.11 [-0.10, 0.31]**	0.16 [-0.05, 0.36]***	
	2	2.14 (1.05)		0.06 [-0.15, 0.26]	
	3	2.20 (1.13)			

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 27

Mean impression ratings (standard deviation) at each time point, and Cohen's d effect size [95% confidence intervals] and inferential statistics with η^2 effect size [95% confidence intervals] comparing the effect of time point at each level of behaviour

Behaviour	Time point	*M* (*SD*)	Time point 2	Time point 3	ANOVA
Credibility					
ASD					$F(1.78, 503.53) = 0.71, \eta^2 = .002$ [.000, .014]
	1	3.52 (1.33)	0.05 [-0.12, 0.21]	0.00 [-0.16, 0.16]	
	2	3.46 (1.29)		0.05 [-0.12, 0.21]	
	3	3.52 (1.33)			
Non-ASD					$F(1.70, 481.33) = 14.73, \eta^2 = .049$ [.019, .086]***
	1	4.19 (1.22)	0.25 [0.08, 0.41]***	0.18 [0.02, 0.35]***	
	2	3.88 (1.29)		0.06 [-0.10, 0.23]	
	3	3.96 (1.27)			
Suspiciousness					
ASD					$F(1.87, 527.91) = 69.71, \eta^2 = .198$ [.141, .252]***
	1	3.62 (0.97)	0.19 [0.03, 0.36]***	0.53 [0.36, 0.69]***	
	2	3.43 (0.99)		0.33 [0.16, 0.49]***	
	3	3.11 (0.97)			
Non-ASD					$F(1.70, 483.86) = 23.78, \eta^2 = .077$ [.039, .120]***
	1	2.45 (0.96)	0.27 [0.11, 0.44]***	0.01 [-0.15, 0.17]	
	2	2.71 (0.94)		0.28 [0.12, 0.45]***	
	3	2.44 (0.96)			

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Inter-relationships between measures. To examine the relationship between each of the dependent measures, a series of correlations were carried out (see Table 28). There were moderate to high inter-correlation between measures in the predicted directions: that is, behavioural appropriateness was associated with increased credibility, more favourable impressions of suspiciousness, decreased negative affect, decreased likelihood of guilt and better impressions of memory report.

Table 28

Correlation [and 95% confidence intervals] between each measure

	Measure				
Measure	1	2	3	4	5
1. Credibility	-				
2. Suspiciousness	-.757 [-.790, -.720]	-			
3. Affect	-.256 [-.331, -.178]	.375 [.302, .444]	-		
4. Likely Guilt	-.809 [-.836, -.779]	.740 [.700, .775]	.242 [.163, .318]	-	
5. Appropriateness	.595 [.539, .646]	-.730 [-.766, .689]	-.221 [-.298, -.141]	-.552 [-.607, -.492]	-
6. Memory report	.832 [.805, .856]	-.637 [-.683, -.585]	-.327 [-.398, -.252]	-.603 [-.653, -.548]	.564 [.505, .618]

Note. The significance of each of these correlations is $p < .001$.

Effect of Behaviour and Evidence upon Verdict across the Interview

Final verdict. To examine whether the negative effect of ASD behaviour on verdict was weakened when stronger evidence was provided, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 2 (verdict: guilty, innocent) hierarchical loglinear analysis was performed on cell frequencies.

Within the analysis, the partial chi-squares for the two-way analyses were examined for the main effects. There were significant main effects of suspect behaviour, χ^2 (1) = 6.12, p = .013, ϕ = -.139, 95% CI [-.219, -.057], and evidence type, χ^2 (2) = 162.18, p <.001, ϕ = .526, 95% CI [.464, .583], on verdict in the predicted direction. Specifically, the percentage of final guilty verdicts was lower in the non-ASD than the ASD condition, replicating the effect found in Study 1. The percentage of guilty verdicts was higher when participants viewed incriminating rather than exonerating, χ^2(1) = 142.66, p <.001, ϕ = .612, 95% CI

[.546, .671], and neutral evidence, $\chi^2(1) = 77.39$, $p < .001$, $\phi = .457$, 95% CI [.373, .533]. Furthermore, there was a lower percentage of guilty verdicts for those who viewed exonerating evidence compared to neutral evidence, $\chi^2(1) = 11.52$, $p < .001$, $\phi = -.182$, 95% CI [-.279, -.082]. See Table 29 for the percentages for each group. Consistent with a successful manipulation of evidence, guilty verdicts were moderately low for neutral evidence (less than 40% deciding guilty), with exonerating even lower than this, and the proportion of guilty verdicts for incriminating evidence at approximately 80%.

Inspection of the descriptive statistics suggests a negligible effect of ASD behaviours on verdict in the incriminating evidence condition, most likely due to guilty verdicts being near ceiling. In contrast, in the presence of ASD behaviours compared to non-ASD behaviours there were approximately 45% more guilty verdicts in the neutral condition, and over 90% more guilty verdicts in the exonerating condition. Note, however, that the three-way association was not statistically significant, with no interaction between the effects of behaviour and evidence on verdict, *likelihood ratio* $G^2 = 2.01$, $df = 2$, $p = .360$.

Table 29

Percentage (and number) of participants who decided the suspect was guilty as their final decision at any time point for each behaviour and evidence condition

	Evidence			
Behaviour	Incriminating	Exonerating	Neutral	Total
Non-ASD	80.0% ($n = 68$)	13.7% ($n = 14$)	29.6% ($n = 29$)	38.9% ($n = 111$)
ASD	81.3% ($n = 91$)	26.1% ($n = 23$)	42.9% ($n = 36$)	52.8% ($n = 150$)
Total	80.7% ($n = 159$)	19.5% ($n = 37$)	35.7% ($n = 65$)	

Changes in verdict across the interview. To examine whether the effects of behaviour and evidence on verdict varied over the course of the interview, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) repeated measures

logistic regression was performed using generalised estimating equations (see Table 30 for these results). The tests of model effects indicated a significant interaction between evidence and time point, but no interaction between behaviour and time point. Furthermore, there was no significant interaction between evidence and behaviour for any of the time points.

Table 30

Results from the tests of model effects for the main and interaction effects on verdict

Predictor	Wald χ^2	*df*	*p* value
Behaviour	12.06	1	.001
Evidence	170.84	2	<.001
Time point	35.42	2	<.001
Behaviour × evidence	3.31	2	.191
Behaviour × time point	0.36	2	.837
Evidence × time point	29.65	4	<.001
Behaviour × evidence × time point	1.49	4	.829

Table 31

Parameter estimates [and 95% confidence intervals] for the interaction effect showing changes in the number of guilty verdicts between the evidence conditions over the different time points

			Evidence	
Time point comparison	Evidence	% Difference	2	3
1 and 2				
	1. Incriminating	- 0.5%	-0.84 [-1.46, -0.22]	-0.97 [-1.52, -0.41]*
	2. Exonerating	+ 11.1%		-0.12 [-0.75, 0.50]
	3. Neutral	+ 23.1%		
1 and 3				
	1. Incriminating	- 4%	0.85 [0.20, 1.51]	0.61 [0.09, 1.13]
	2. Exonerating	+ 9.5%		0.24 [-0.40, 0.88]
	3. Neutral	+ 12.1%		
2 and 3				
	1. Incriminating	- 3.5%	0.01 [-0.55, 0.57]	-0.36 [-0.89, 0.18]
	2. Exonerating	- 1.6%		0.37 [-0.15, 0.89]
	3. Neutral	- 11%		

Note. * is significant for Bonferroni correction at $p < .006$, ** is $p < .001$.

Table 32

Percentage of guilty verdicts, chi-square comparisons and ϕ effect sizes [and 95% confidence intervals] between each evidence condition at each time point

Time point	Evidence	% guilty verdict	Evidence chi-square	
			2	3
1				
	1. Incriminating	81.2% (160)	$\chi^2(1) = 182.58$, $\phi = .692$ [.636, .741]**	$\chi^2(1) = 119.32$, $\phi = .566$ [.493, .631]**
	2. Exonerating	12.1% (23)		$\chi^2(1) = 9.08$, $\phi = .163$ [.062, .260]*
	3. Neutral	24.7% (45)		
2				
	1. Incriminating	80.7% (159)	$\chi^2(1) = 126.16$, $\phi = .576$ [.505, .639]**	$\chi^2(1) = 43.55$, $\phi = .344$ [.252, .430]**
	2. Exonerating	23.2% (44)		$\chi^2(1) = 23.68$, $\phi = .258$ [.161, .350]**
	3. Neutral	47.8% (87)		
3				
	1. Incriminating	77.2% (152)	$\chi^2(1) = 117.29$, $\phi = .556$ [.483, .621]**	$\chi^2(1) = 61.48$, $\phi = .408$ [.320, .489]**
	2. Exonerating	21.6% (41)		$\chi^2(1) = 9.75$, $\phi = .168$ [.067, .265]*
	3. Neutral	36.8% (67)		

Note. * is significant for Bonferroni correction at $p < .016$[5], ** $p < .001$

For the interaction between evidence and time point, the parameter estimates and follow-up chi-square analyses (see Tables 31 and 32) showed that there was a strong and significant effect of evidence at each time point. That is, those who viewed incriminating evidence provided a greater number of guilty verdicts than those who viewed neutral and in turn exonerating evidence. However, between time points one and two, there was a greater increase in the number of guilty verdicts for those who viewed neutral (23.1%) compared to incriminating evidence (-0.5%). This then led to a smaller effect of evidence at the second time point, although this effect was still significant. This was the only parameter estimate that was significant after Bonferroni correction. The patterns of parameter estimates and chi-

[5] This Bonferroni correction is based on dividing the alpha of .05 by the number of comparisons between each level of evidence for each time point (i.e., three comparisons)

square results suggest, however, that there was generally a greater increase in guilty verdicts over the interview from time one to two, and time one to three for the neutral and exonerating evidence groups compared to incriminating. This most likely reflects a ceiling effect with incriminating evidence producing such a high number of guilty verdicts that there was a limited opportunity for guilty verdicts to move further over the course of the interview.

Effect of Behaviour on Verdict through Suspect Evaluations

The same PROCESS model (Hayes, 2018) as in Study 1 was carried out to assess whether the effect of behaviour upon verdict could be explained by the influence it had upon violated expectations, feelings of negative affect, and impressions of suspect suspiciousness and credibility, and whether this varied depending on the evidence presented. Three individual models were carried out to look at this serial mediation for incriminating, exonerating and neutral evidence (see Figures 6, 7 and 8 for only those significant direct effects within the model; and Table 33 for the indirect effects). These models were run in the same way as Study 1, with the same variables entered in the same order, with reverse coded scales so that higher mean scores reflected more negative impressions for each measure, and those mean scores based on an average of responses made up until the final verdict was entered.

Consistent with predictions for a replicated mediation of the behaviour effect, the direct and indirect effects showed that for each evidence condition ASD behaviour was associated with increased impressions of behavioural inappropriateness, which was in turn associated with increased negative affect. Negative affect was associated with increased impressions of suspiciousness, with suspiciousness related to impressions of poorer credibility and in turn a verdict that was more likely guilty. The indirect effect of behaviour upon verdict through this pathway including all variables was of a similar size for each of the evidence conditions (see Table 33). Additionally, when the evidence was incriminating,

behaviour had a direct effect on negative affect. When the evidence was neutral, behavioural inappropriateness had a direct effect upon final verdict whilst suspiciousness did not; and when the evidence was exonerating, behaviour did not have a direct effect upon suspiciousness as in the other two conditions.

The size of the unstandardised regression coefficients (see Table 33) showed the effect of behaviour upon verdict, through those indirect pathways that were significant for all conditions, was larger when participants were presented with neutral evidence rather than incriminating and exonerating evidence. This was most evident when looking at the pathway through appropriateness and credibility, where the effect size for neutral evidence, $B = 0.43$, 95% CI [-0.13, 1.02], was more than double that of incriminating, $B = 0.19$, 95% CI [0.02, 0.53], and exonerating evidence, $B = 0.27$, 95% CI [0.02, 0.78]. For incriminating evidence, there was a significant pathway through suspiciousness, whereas there was no significant effect through suspiciousness for exonerating or neutral evidence. The indirect effect of behaviour through the pathways that included negative affect were weak across all evidence conditions.

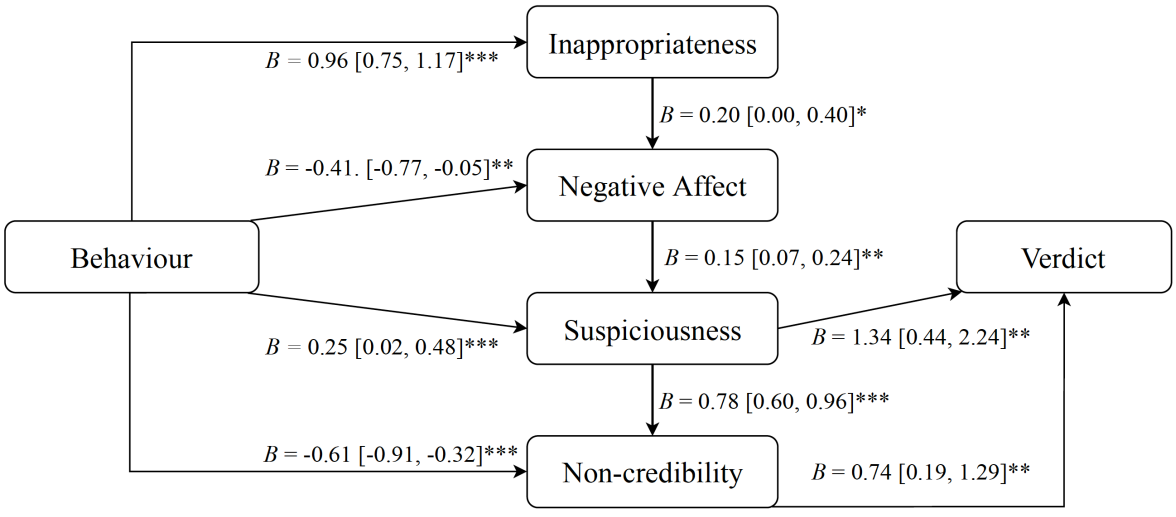


Figure 6. Model for incriminating evidence with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

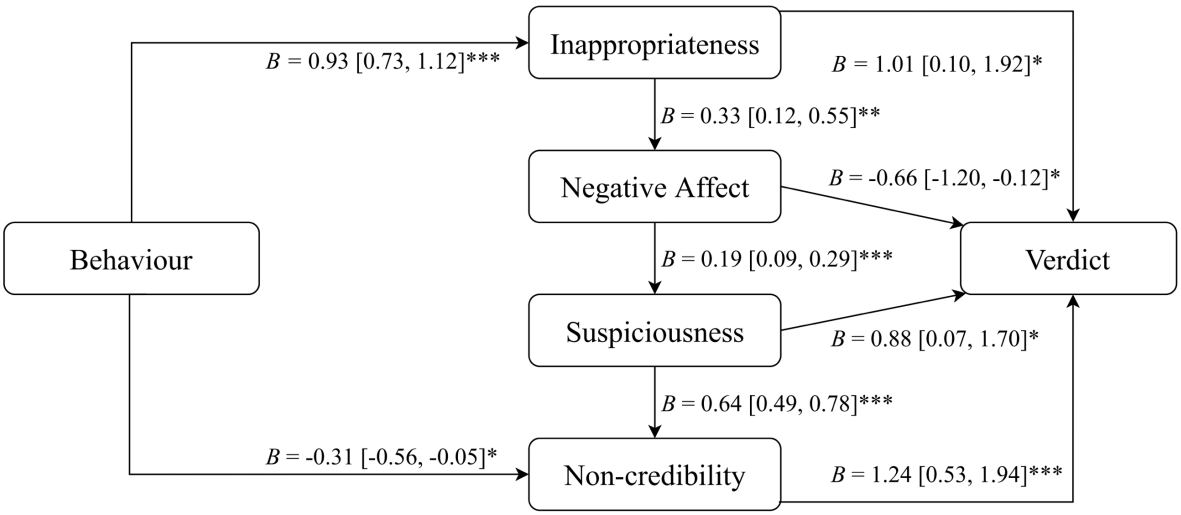


Figure 7. Model for exonerating evidence with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * p <.05, ** p <.01, *** p <.001.

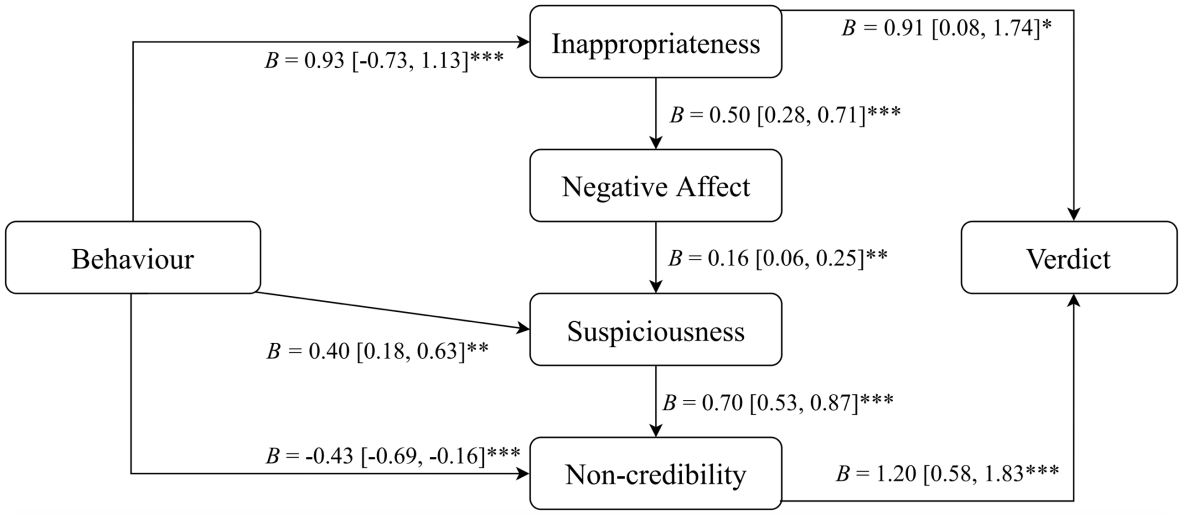


Figure 8. PROCESS model for neutral evidence with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * p <.05, ** p <.01, *** p <.001.

Furthermore, there were significant direct effects of behaviour on verdict after controlling for the mediating variables for all evidence conditions. This suggested that there may be separate unmeasured variables influencing this relationship that were not accounted

for within the model. Given the present study included additional details within the evidence manipulation that influenced impressions of the memory report, separate PROCESS models were carried out to assess the same pathway effect when memory report was entered as a covariate. However, similar results were found. Even with memory report as a covariate, the direct effect of behaviour on verdict was significant for incriminating evidence, B = -1.85, 95% CI [-3.09, -0.60]; exonerating evidence, B = -1.84, 95% CI [-3.31, -0.38]; and neutral evidence B = -1.27, 95% CI [-2.29, -0.25].

Table 33

Unstandardized regression coefficients [and 95% confidence intervals] for each of the indirect pathway effects on the final verdict

	Evidence		
Pathway	Incriminating	Exonerating	Neutral
IN	0.74 [0.05, 1.63]*	0.94 [-0.04, 2.21]	0.85 [-0.05, 1.82]
IN - NA	-0.00 [-0.13, 0.11]	-0.20 [-0.55, -0.03]*	-0.06 [-0.29, 0.12]
IN - SU	0.76 [0.30, 1.39]*	0.62 [-0.23, 1.54]	0.40 [-0.13, 1.02]
IN -NC	0.19 [0.02, 0.53]*	0.27 [0.02, 0.78]*	0.43 [0.14, 0.96]*
IN - NA - SU	0.04 [0.00, 0.14]*	0.05 [0.00, 0.22]*	0.05 [0.00, 0.17]*
IN - NA - NC	-0.02 [-0.08, 0.00]*	0.02 [-0.02, 0.11]	0.01 [-0.06, 0.09]
IN - SU - NC	0.33 [0.08, 0.71]*	0.55 [0.19, 1.36]*	0.54 [0.18, 1.15]*
IN - NA - SU - NC	0.02 [0.00, 0.07]*	0.05 [0.01, 0.18]*	0.06 [0.01, 0.18]*
NA	0.01 [-0.22, 0.24]	0.07 [-0.20, 0.45]	0.03 [-0.05, 0.27]
NA - SU	-0.08 [-0.26, -0.01]*	-0.02 [-0.19, 0.03]	-0.02 [-0.14, 0.01]
NA - NC	0.04 [0.00, 0.16]*	-0.01 [-0.10, 0.02]	-0.01 [-0.08, 0.03]
NA - SU - NC	-0.04 [-0.13, -0.01]*	-0.02 [-0.14, 0.04]	-0.03 [-0.15, 0.01]
SU	0.34 [0.03, 0.83]*	0.19 [-0.05, 0.79]	0.25 [-0.06, 0.70]
SU - NC	0.14 [0.01, 0.44]*	0.17 [-0.06, 0.65]	0.34 [0.10, 0.78]*
NC	-0.45 [-1.05, -0.08]*	-0.38 [-1.03, -0.07]*	-0.51 [-1.18, -0.15]*
Total effect	0.08 [-0.63, 0.79]	0.80 [0.06, 1.54]*	0.58 [-0.03, 1.19]
Total indirect effect	2.01 [0.95, 3.16]*	2.30 [1.00, 3.66]*	2.31 [1.28, 3.48]*
Direct effect	-1.73 [-2.94, -0.51]*	-1.51 [-2.87, -0.15]*	-1.24 [-2.25, -0.23]*

Note. 'IN' is inappropriateness; 'NA' is negative affect; 'SU' is suspiciousness; 'NC' is non-credibility

* is a significant effect, as the 95% bootstrap confidence interval does not pass through zero

As in the first study, the surprising positive relationship between ASD behaviour and suspect credibility after controlling for the influence of the other mediating variables, leading to a reduced likelihood of a guilty verdict, was present for all evidence conditions. Again, it

was possible that this was a result of an overcompensation in ratings of credibility, potentially due to the behaviour leading to an inference about the presence of some disorder.

Basis of Verdict

At the end of the interview, after all the ratings were made, participants were asked to respond to an open-ended question probing the basis of their final verdict. Participants were given the option to list from one up to ten different reasons for their verdict. Thematic analysis was used to examine themes and subthemes within these responses to assist in coding the basis of decision making. An independent judge who was blind to the experimental conditions and hypotheses of the study coded 15% of the total number of reasons provided to assess the reliability of coding; there was approximately 82% agreement between the coders.

Table 34

Frequency of reasons provided by participants as the basis of their verdict within each condition

	Evidence			
Behaviour	Incriminating	Exonerating	Neutral	Total
ASD	441	328	277	1046
Non-ASD	300	368	321	989
Total	741	696	598	

Table 34 shows the number of reasons provided for the various evidence and behaviour conditions. Participants who viewed ASD behaviours reported more reasons than non-ASD behaviours, and those who viewed neutral evidence reported fewer reasons than those who viewed incriminating and exonerating evidence. Because of the variability in the number of responses provided across conditions, the percentage of reasons reported by participants that fell within each of the major themes identified was calculated based on the total number of reasons reported for each condition. For example, as seen in Table 35,

20.94% of the total number of reasons for the verdict (1046) reported by those who viewed ASD behaviours (n = 284) were based on the demeanour of the suspect.

Table 35

Percentage (and frequency) of reasons provided as a basis for the verdict within each theme across each level of the evidence and behaviour conditions

		Evidence			
Basis of decision	Behaviour	Incriminating	Exonerating	Neutral	Total
ASD behaviour					
	ASD	14.06% (62)	9.45% (31)	10.11% (28)	11.57% (121)
	Non-ASD	1.33% (4)	2.99% (11)	3.74% (12)	2.73% (27)
	Total	8.91% (66)	6.03% (42)	6.69% (40)	
Demeanour					
	ASD	21.54% (95)	19.51% (64)	21.66% (60)	20.94% (219)
	Non-ASD	14.67% (44)	23.10% (85)	15.26% (49)	18.00% (178)
	Total	18.76% (139)	21.41% (149)	18.23% (109)	
Evidence					
	ASD	21.54% (95)	26.22% (86)	17.33% (48)	21.89% (229)
	Non-ASD	26.33% (79)	26.36% (97)	21.18% (68)	24.67% (244)
	Total	23.48% (174)	26.29% (183)	19.40% (116)	
Lack of evidence					
	ASD	4.53% (20)	7.62% (25)	8.66% (24)	6.60% (69)
	Non-ASD	3.33% (10)	7.61% (28)	7.79% (25)	6.37% (63)
	Total	4.05% (30)	7.61% (53)	8.19% (49)	
Testimony details					
	ASD	38.32% (169)	37.20% (122)	42.24% (117)	39.01% (408)
	Non-ASD	54.33% (163)	39.95% (147)	52.02% (167)	48.23% (477)
	Total	44.80% (332)	38.65% (269)	47.49% (284)	

Although these percentages were calculated, no firm conclusions could be drawn from comparing those percentages across groups. As previously outlined, observers' self-reports about underlying thought processes are often unreliable. Also, it is impossible to determine how these reasons were weighted by each participant. For example, two participants may have reported both ASD behaviour and testimony details as reasons for their verdict, but one of those participants may have placed a greater emphasis on ASD behaviour whilst the other participant may have weighted testimony details as more important in informing the verdict. These responses could, therefore, only be used as crude pointers of the

factors that may have shaped participant decision-making. Five main themes emerged from participants' self-reports: (1) ASD behaviours; (2) demeanour; (3) evidence; (4) lack of evidence; (5) testimony details.

ASD behaviour. This theme included the mention of deficits in any of those behaviours that aligned with those expected to be displayed by ASD adults: eye contact, verbal quality, emotional expression or body movement. When specific behaviours of the suspect were discussed by participants as the basis of decision making, it was primarily displays of gaze aversion and fidgeting that were mentioned. These behaviours were mostly seen as indicative of guilt, although in some cases they were seen as displays of nervousness and interpreted as natural given the stress of a police interview setting. It is possible that those who interpreted the ASD behaviours as displays of nervousness or anxiety in the interview context may have overcompensated in credibility judgments, thereby leading to a decreased likelihood of a guilty verdict. Note, however, that only one participant responded that they believed the suspect had an ASD diagnosis or some other disorder.

Demeanour. This theme involved classifications of behavioural displays that did not include the aforementioned specific ASD behaviours and involved descriptions of how the suspect "seemed" or "appeared" to behave (e.g., nervous, angry, confident, calm, doesn't seem like a criminal, appeared to be hiding something). Most of the behaviours described within this theme focused on the suspect appearing nervous, anxious and angry. These demeanour impressions were often highlighted by participants as being driven by those ASD behaviours, such as fidgeting being associated with appearing nervous, or the unusual volume of the suspect's voice being associated with anger.

Evidence. This theme included decisions that were made based on the information provided by the fingerprint expert or bystander, as well as whether or not this contradicted or

confirmed the testimony of the suspect (e.g., he was close with the ringleader, his fingerprints did not match the gun).

Lack of evidence. These reasons indicated that participant verdict decisions were based on there not being enough evidence to link the suspect to the crime (e.g., circumstantial evidence).

Testimony details. The most frequently reported responses were captured by this theme. Several subthemes emerged, including the financial status of the suspect, his lengthy travel periods and time away from work, living with the other men suspected of involvement in the crime, that he was compliant and answered all questions, how consistent he was in the detail provided, and that he avoided questions or was vague in his answers.

Heuristic versus systematic reasons. For the reasons outlined above, comparisons of responses given by participants exposed to ASD versus non-ASD behaviours are problematic. Nevertheless, to extend the crude comparisons a little further, I examined whether those who received stronger evidence (within the incriminating and exonerating conditions) reported a greater number of systematic or heuristic cues for their decision making. Given that systematic processing should be based on 'hard' information received, the themes of evidence, lack of evidence and testimony details were pooled. Responses suggesting a reliance on heuristic cues provided by ASD behaviour and demeanour were also combined. See Table 36 for the pooled percentage of heuristic and systematic reasons within each group. Overall, those who viewed ASD behaviour reported a greater number of heuristic cues, and fewer systematic cues, than those who viewed non-ASD behaviour. There did not, however, appear to be any meaningful difference in the number of heuristic and systematic cues reported between the evidence conditions. This was in contrast to the expectation that, with the more decisive evidence available within the incriminating and exonerating

conditions, participants might have reported a greater number of systematic cues compared to those who viewed ambiguous neutral evidence.

Table 36

Percentage (and frequency) of heuristic and systematic cues provided by participants as reasons for the basis of the verdict across each level of the evidence and behaviour conditions

		Evidence			
Basis of decision	Behaviour	Incriminating	Exonerating	Neutral	Total
Heuristic cues	ASD	35.60% (157)	28.96% (95)	31.77% (88)	32.50% (340)
	Non-ASD	16.00% (48)	26.09% (96)	19.00% (61)	20.73% (205)
	Total	27.67% (205)	27.44% (191)	24.92% (149)	
Systematic cues	ASD	64.40% (284)	71.04% (233)	68.23% (189)	67.50% (706)
	Non-ASD	84.00% (252)	73.91% (272)	81.00% (260)	79.27% (784)
	Total	72.33% (536)	72.56% (505)	75.08% (449)	

Verdict Confidence

To examine the prediction that more decisive evidence would lead to greater verdict confidence, and whether there was an interaction with behaviour, a factorial ANOVA tested the effect of the behaviour and evidence conditions on participants' ratings of confidence in their verdict both at the final opportunity (time point three) and when submitting their final verdict (which could have been entered at any time point). This revealed no significant effect of behaviour on verdict confidence at the final opportunity, $F(1, 563) = 0.53$, $p = .469$, $\eta^2 = .001$, 95% CI [.000, .012], or at the final decision, $F(1, 563) = 0.25$, $p = .615$, $\eta^2 = .000$, 95% CI [.000, .010].

There was a significant main effect of evidence on verdict confidence at the final opportunity, $F(2, 563) = 7.58$, $p = .001$, $\eta^2 = .025$, 95% CI [.005, .054], and for the final

decision, $F(2, 563) = 6.89$, $p = .001$, $\eta^2 = .023$, 95% CI [.004, .050] (see Table 37 for these results). Tukey post-hoc testing revealed that confidence ratings made by those in the neutral evidence condition were lower than those in the incriminating and exonerating conditions. Furthermore, there was no difference in verdict confidence between the incriminating and exonerating conditions. In other words, participants were more confident in their verdicts when decisive evidence (incriminating or exonerating) was available.

Table 37

Mean percentage (standard deviation) of confidence in verdict and Cohen's d effect size [and 95% confidence intervals] for the comparison of verdict confidence across each evidence condition

			Evidence	
Verdict timing	Evidence	M (SD)	2	3
Final verdict				
	1. Incriminating	73.88 (22.35)	0.11 [-0.09, 0.31]	0.26 [0.05, 0.46]*
	2. Exonerating	76.26 (20.50)		0.38 [0.17, 0.58]**
	3. Neutral	68.21 (22.08)		
Final opportunity				
	1. Incriminating	73.82 (22.78)	0.05 [-0.15, 0.25]	0.31 [0.11, 0.52]**
	2. Exonerating	74.91 (20.57)		0.38 [0.17, 0.58]**
	3. Neutral	66.67 (22.84)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

There was also a relatively weak but statistically significant interaction between behaviour and evidence for confidence in decisions made at the final opportunity, $F(2, 563) = 3.86$, $p = .022$, $\eta^2 = .013$, 95% CI [.000, .035] and final decisions made at any time, $F(2, 563) = 5.77$, $p = .003$, $\eta^2 = .019$, 95% CI [.002, .045] (see Table 38 for these results). A simple-effects analysis revealed that, for final verdict confidence, those who viewed neutral evidence were less confident when they viewed ASD behaviours compared to non-ASD behaviours. The opposite behaviour effect was found for incriminating evidence, with increased

confidence for those who viewed ASD compared to non-ASD behaviours. There was no behaviour effect found for exonerating evidence. These results suggested that when ASD behaviours were present and evidence was ambiguous, participants were not very confident. However, when given decisive incriminating evidence, confidence was increased when viewing ASD behaviours. Although these behaviour effects were only significant for verdicts entered as final and not at the final time point, the means (reported in Table 38) and confidence intervals for the effect sizes indicate a similar pattern of the behaviour effect in the incriminating and neutral conditions.

Table 38

Mean percentage (standard deviation) of confidence in verdict and t-test results comparing the effect of behaviour at each level of evidence with Cohen's d effect size [and 95% confidence intervals]

Verdict timing	Evidence	Behaviour	*M (SD)*	*t*-test
Final verdict				
	Incriminating			$t(158.62) = -2.31, d = 0.34$, 95% CI [0.06, 0.62]*
		1. ASD	77.14 (19.94)	
		2. Non-ASD	69.58 (24.64)	
	Exonerating			$t(188) = 1.21, d = 0.20$, 95% CI [-0.09, 0.48]
		1. ASD	74.33 (22.40)	
		2. Non-ASD	77.92 (18.66)	
	Neutral			$t(180) = 2.06, d = 0.31$, 95% CI [0.01, 0.60]*
		1. ASD	64.60 (23.67)	
		2. Non-ASD	71.31 (20.23)	
Final opportunity				
	Incriminating			$t(195) = -1.79, d = 0.26$, 95% CI [-0.03, 0.54]
		1. ASD	76.33 (21.44)	
		2. Non-ASD	70.51 (24.16)	
	Exonerating			$t(188) = 1.36, d = 0.18$, 95% CI [0.11, 0.46]
		1. ASD	72.73 (21.74)	
		2. Non-ASD	76.78 (19.43)	
	Neutral			$t(180) = 1.72, d = 0.26$, 95% CI [-0.04, 0.55]
		1. ASD	63.55 (24.35)	
		2. Non-ASD	69.35 (21.22)	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

Study 2b provided support for Study 1 through replicating the effects of more negative impressions and a greater number of guilty verdicts formed by observers when viewing a suspect display ASD compared to non-ASD behaviours. The findings of Study 1 were replicated using a much larger sample (albeit an online sample) and when employing a shorter interview length. Additionally, Study 2b did not provide support for the attenuation hypothesis of the heuristic-systematic model—instead revealing participants appeared to rely on the ASD behaviour heuristic even in the face of other decisive evidence.

Attenuation and Bias Hypotheses

According to the heuristic-systematic model, when sufficient judgmental confidence can be attained through the systematic processing of information, heuristic processing of other information is reduced (attenuation hypothesis). Alternatively, when there is ambiguity in the information to be systematically processed, heuristic processing may bias systematic processing (bias hypothesis). In Study 2b, across both decisive and ambiguous evidence conditions, the negative effect of ASD behaviour persisted. This was in contrast to the prediction that strong incriminating and exonerating evidence would give way to greater judgmental confidence from systematic processing, reduce heuristic bias, and thus minimise the ASD behaviour effect compared to neutral evidence.

Heuristic processing of behaviour biased participants' impressions of the suspect's credibility, suspiciousness and likely guilt, and the verdict they entered. That is, even after receipt of decisive incriminating evidence linking the suspect to crime scene fingerprints and a friendship with the arrested ringleader of the robberies, or exonerating evidence that did not match the suspect's fingerprints to those at the crime scene and described limited contact with the ringleader of the robberies, participants were still relying on ASD behavior to inform judgments of guilt.

Although impressions of evidence ambiguity were not explicitly tested, the likely guilt ratings from the Study 2b pilot, and verdict confidence ratings from Study 2b implied that incriminating and exonerating information was unambiguous. That is, the ratings of likely guilt after viewing only the evidence videos for the exonerating condition placed the suspect at almost the lowest level of guilt, compared to a mid-level for the neutral, and a high level for the incriminating. Furthermore, those who viewed incriminating and exonerating evidence were comparably more confident in their final verdict than those who viewed neutral evidence. Given that the decisive evidence conditions were not ambiguous, these results suggest a strong effect of the ASD behaviour heuristic even in the presence of other convincing evidence.

The Mechanisms Underpinning the Effect of Behaviour on Verdict

The route through which behaviour affected verdict was similar across all evidence conditions. The mediation model showed that violated behavioural expectations and each of the impression ratings, when entered together, were able to partially explain the relationship between behaviour and verdict when evidence was incriminating, exonerating and neutral. That is, compared to non-ASD behaviour, ASD behaviour violated participants' behavioural expectations, which was associated with increased feelings of negative affect, impressions that the suspect was more suspicious and less credible, and verdicts that were more likely guilty. The strength of the behaviour effect through the pathway that included all of the mediators entered together was similar for each evidence condition.

There were, however, several differences between conditions in the strength of the behaviour effect through certain other indirect pathways. For most of the indirect pathways through which behaviour had a significant effect on verdict for all evidence conditions (e.g., credibility, appropriateness and credibility, suspiciousness and credibility), these effects appeared to be weaker for decisive evidence (exonerating and incriminating) compared to

ambiguous neutral evidence. Although there was some overlap between confidence intervals for the indirect effects between groups, these results may suggest that when there was less decisive evidence available to process systematically (i.e., neutral evidence), behaviour affected verdict to a greater degree through its effect upon those pathways that included credibility. In contrast, the pathway through suspiciousness was stronger for those who viewed incriminating evidence compared to exonerating and neutral. Furthermore, for some pathways (particularly those that included negative affect) there was only a small, or virtually no, difference detected between groups.

For all evidence conditions there were significant direct effects of behaviour on verdict, with the direction of the effect suggesting that there were other unmeasured variables leading to ASD behaviour being interpreted as less likely guilty. Additionally, as in Study 1, ASD behaviour had a direct and positive effect on credibility which led to a lower likelihood of guilt (after accounting for the effect of the other mediator variables on credibility). The verdict reasons provided by participants revealed that ASD behaviours were sometimes interpreted as displays of anxiety or nervousness that were considered normal due to the stressful environment of a police interview. This suggests the possibility that when ASD behaviour was interpreted by participants in this way, greater compassion or sympathy on the part of the participant may have led to an overcompensation in ratings of credibility and, in turn, more favourable verdict decisions. Within the measure of negative affect, one item assessed how unsympathetic participants felt during the study, but this item did not explicitly measure how those feelings related to the suspect. Further research could more specifically measure the level of compassion participants felt toward the suspect during the interview to better examine this as a possibility for the positive effect of ASD behaviour on verdict.

The self-report data on the reasons participants provided for their verdict were examined, however, given the previously discussed limitations associated with these

responses I have highlighted only three key points from the results. Participants reported a greater number of reasons related to heuristic cues when those cues were available to be processed (i.e., those who viewed ASD behaviours) than when there was a lower availability of heuristic cues (i.e., those who viewed non-ASD behaviours). Overall, there was a greater number of systematic cues reported compared to heuristic, and these patterns were similar across all evidence conditions. There was no clear difference in the number of systematic or heuristic cues reported between those who viewed incriminating, exonerating or neutral evidence.

Conclusion

The ASD behaviour displayed by the suspect led to more unfavourable judgments of that suspect as a result of violating expectations of appropriate behaviour. This behaviour effect, through violated expectations and resulting negative impressions, was found to occur for different levels of evidence. To better understand these mechanisms, a third variable which has the potential to vastly impact those judgments of ASD behaviour requires consideration. Studies 1 and 2b presented observers with an actor who displayed behaviours commonly associated with ASD. However, observers were not provided with any explicit information linking the suspect's behaviours to the possibility that he had an ASD diagnosis. It is possible that providing participants with an explanation for the 'unusual' behaviours, by informing them that the suspect has an ASD diagnosis, may mitigate any negative evaluations. Knowing that the suspect has an ASD diagnosis may help participants to frame evaluations of those ASD behaviours as beyond the suspect's control rather than inferring that the suspect is deceitful, suspicious or guilty of the crime. That knowledge may lead to a shift in attention to the content of the suspect's interview statement or evidence as opposed to a reliance on behaviour. Alternatively, the labelling of ASD may cause more negative interpretations if the observer is ignorant about the disorder. One study, for example, found

that exposure to negative media reports linking violent crime and ASD led to more negative attitudes regarding ASD individuals (Brewer, Zoanetti, & Young, 2017). Consequently, I conducted a third study to assess the impact that ASD labelling had upon impressions of ASD behaviour, and how this interacted with evidence.

CHAPTER 4

Study 3

Do ASD Individuals Reveal their Diagnosis to Police?

The disclosure of one's ASD diagnosis to criminal justice professionals appears to be influenced by fear of being discriminated against due to a lack of knowledge or unfair stigmatisation (Crane, Maras, Hawken, Mulcahy, & Memon, 2016). There have been few studies investigating the likelihood of ASD individuals disclosing their diagnosis to criminal justice professionals. Also, little research has examined at which point in the process of the interactions with justice system professionals such disclosures are likely to become available. In a survey of 28 ASD adults in England and Wales who had had interactions with the criminal justice system, Crane et al. (2016) found that 39% always disclosed their diagnosis, 36% never disclosed, while 25% disclosed their diagnosis on some occasions but not others. In the same study, however, a survey of 41 parents of ASD individuals revealed that 76% reported that their children's diagnosis was always or sometimes disclosed. Police (n = 260) who were surveyed in the same study revealed that, when they were aware of an individual's diagnosis of ASD, 90% reported that this diagnosis was known to them before, or during, their first contact with the individual. Similarly, Maras et al. (2017) reported in their survey of 25 ASD adults in England and Wales who had come into contact with the criminal justice system that only 36% reported that their diagnosis was disclosed every time, with 20% reporting it was sometimes disclosed, 24% disclosed part-way through an investigation, and 12% were diagnosed as a result of the incidence being investigated. In that same study, 92% of the 13 solicitors and barristers who had represented an ASD individual responded that they had experienced interactions in which they were not made aware of the diagnosis until trial. In summary, the evidence regarding disclosure of diagnosis is mixed in nature and comes from studies with only small sample sizes.

Findings from Studies that have Examined ASD Labelling

Few studies have examined the influence that labelling a witness or a suspect with a diagnosis of ASD has upon observers' impressions of that individual within a mock-juror context. Two studies used written information to describe the behaviour of a suspect in line with those behaviours expected to be present in ASD, and examined how those descriptions and an ASD label influenced mock-juror impressions.

In one of those studies, Maras, Marshall, and Sands (2019) provided participants with written information about a crime involving a suspect who behaved aggressively due to his train being cancelled and subsequently assaulted a police officer who tried to restrain him. They then provided information regarding atypical behaviours displayed by that suspect in court. The atypical behaviours described were based upon ASD characteristics outlined within the DSM-5 diagnostic criteria for ASD as well as previous research into the offending behaviour of ASD individuals. The behaviours included aggressive behaviours, anxiety, an inability to cope with uncertainty, sensory sensitivity, adherence to routine, deficits in eye contact and repetitive movements. Within the study, half of the participants (n = 80) were informed before reading the crime and courtroom vignette that the suspect had a diagnosis of ASD. The ASD information was provided in the form of a written report describing that a forensic psychologist had assessed the man, as well as including information defining ASD and outlining the potential implications for that man's behaviours. For example, "participants were told the defendant sometimes found it difficult to communicate appropriately, experienced sensory sensitivity, and often felt highly anxious in unfamiliar situations" (Maras, Marshall, & Sands, 2019, p. 998). The other half of the participants (n = 80) were not given any information regarding a diagnosis or further information. Results showed that observers who were not provided with a label of ASD found the suspect to appear "disinterested, uncaring, and did not regret his actions, which reduced his overall likeability"

(p. 1005). The provision of a label and ASD information led to impressions of greater honesty and likeability, reduced blame for the crime, and resulted in fewer guilty verdicts, compared to impressions formed when there was no label or information provided to participants.

In a similar study, Berryessa, Milner, Garrison, and Cho (2015) examined jurors' perceptions of an ASD defendant through written case details of an assault and information regarding the atypical behaviour of that individual when they were on the stand during trial (e.g., smiling, not showing remorse). Following this information (in which participants were not made aware that the defendant had a diagnosis of ASD) participants rated their impressions of the defendant's criminality and responsibility. They were then provided with a transcript from a psychiatrist who provided expert testimony during the trial which included details that the defendant had high functioning ASD along with general information about behavioural characteristics associated with ASD. Participants were then re-assessed on the same impressions. Participants judged the defendant to be less morally responsible and to have less criminal intention after they were told about the diagnosis compared to before they were informed of the diagnosis. However, there was no difference in impressions of the defendant's legal responsibility or criminality after learning of the ASD diagnosis.

Although Berryessa et al.'s (2015) study was similar to Maras, Marshall, and Sands' (2019) study in providing written information to participants, there were several key differences. First, alongside the ASD label both studies provided information regarding the disorder that was somewhat tailored to the defendant. However, Maras, Marshall, and Sands provided more individual-specific information about ASD behaviours expected to be present in that particular defendant than the more general description of ASD provided within the psychiatrist report in Berryessa et al. The two studies differed on the timing of the presentation of the diagnostic label, with Berryessa et al. presenting it after the crime and trial

information, whilst Maras, Marshall, and Sands provided it before reading the crime vignette. Finally, Berryessa et al. used a within-subjects design, with all participants receiving information regarding the diagnosis, whereas Maras, Marshall, and Sands had a control condition that did not provide any information of a diagnosis. The former design makes it harder to assess whether there were demand characteristics or carry-over effects influencing the results.

The potential importance of providing detailed information on ASD instead of just a diagnostic label, as well as more individual-specific ASD information, was highlighted by Crane et al. (2018). Their study investigated how a label of ASD, or a label combined with ASD information, changed impressions of two child ASD witnesses. Specifically, when participants were provided with a label and a small amount of ASD information, there were more favourable credibility ratings of Child B compared to those from participants who were not told about Child B's diagnosis. However, for Child A there was no difference in credibility ratings when participants were provided with ASD information versus when there was no label. It was hypothesised that this may be due to Child A's manifestation of the ASD diagnosis not aligning as well with the description of ASD provided within the information compared to Child B. An alternative hypothesis advanced by Crane et al. (2018) was that the greater number of details relayed by Child A may have made that child appear more credible than Child B, reducing the capacity for ASD labelling and information to improve credibility ratings further. Importantly, it was also shown that providing information about ASD alongside the diagnostic label improved Child B's credibility ratings, whereas providing a label alone did not improve credibility relative to the no label condition. Given that the presentation of ASD characteristics varies widely for each child and adult with a diagnosis, it may be critical that information regarding behaviours specific to each individual is provided

rather than a broad description. However, more research is necessary given the variability in what was relayed by each of these child witnesses may have affected Crane et al.'s results.

One study, mentioned within Chapter One, investigated the effects of labelling upon participants' impressions of ASD and non-ASD adult witnesses (Maras, Crane, et al., 2019). Maras, Crane, et al. detected no difference in the perceived credibility of an ASD versus a non-ASD witnesses when there was no label provided, likely due to the similarity of detail reported and lack of opportunity for behavioural differences between witnesses. There was, however, a small but significant improvement in impressions of ASD witnesses when those witnesses were labelled as ASD and participants were provided with a description of the diagnosis. When labelled, ASD witnesses were rated as more credible than the non-ASD witnesses (who were not labelled). The suggested explanation for this effect was that the description of ASD may have lowered initial expectations of credibility due to the difficulties listed as associated with ASD. The subsequent high level of detail provided by the ASD witnesses may have then exceeded those expectations and caused participants to overcompensate in their ratings of credibility.

A separate line of research has explored the impact that the ASD label has on observers' impressions of ASD and non-ASD individuals within a non-criminal context. Two of these studies in particular have examined the likeability and first impressions of ASD individuals compared to typically developed (TD) individuals using both static images and short video clips of these individuals auditioning for a television show (Sasson, Faso, Nugent, Lovell, Kennedy, & Grossman, 2017; Sasson & Morrison, 2019). In line with the findings of the aforementioned mock-juror studies, these studies found that, when unaware of an ASD diagnosis, observers (a) perceived ASD individuals as less likeable, attractive and approachable, as well as more awkward and submissive, and (b) were more hesitant to interact with those ASD individuals than with TD individuals. Furthermore, again in line with

the mock-juror studies, Sasson and Morrison (2019) found that, when observers were made aware of the ASD diagnosis, their impressions of ASD individuals were significantly more positive than when they were not aware of the diagnosis or the individuals were mislabelled as TD. Additionally, they found that, when TD individuals were mislabelled as having a diagnosis of ASD, impressions of those individuals became more favourable than when they were labelled as TD. Moreover, participant knowledge of ASD was positively related to more favourable impressions of ASD individuals. It is important to note, however, that although impressions of the ASD individuals became more favourable when they were labelled, these impressions were still significantly more negative than those regarding the TD individuals. Disclosure of the ASD diagnosis therefore reduced negative impressions but did not eliminate the bias against ASD individuals.

Mechanisms through which Labelling Reduces Negative Impressions

In studies that examined ASD labelling within a criminal context, there was a reduction in negative evaluations and guilty verdicts when an ASD label was provided compared to when there was no label. And, even when the defendant was found guilty, they were perceived as less criminally or morally responsible for the crime when labelled with ASD than when unlabelled. For example, Maras, Marshall, and Sands (2019) found that the defendant was perceived as less personally blameworthy for his criminal actions by those who were told he had a diagnosis of ASD compared to those not provided with a label. Likewise, Berryessa et al. (2015) found that mock-jurors judged a defendant to be less morally responsible and to have less criminal intention after they were told about the defendant's ASD diagnosis compared to before they knew. Labelling may reduce guilty verdicts and impressions of criminal responsibility by providing an alternative explanation for the behaviour, and by highlighting that the ASD individual has a lack of control over their behaviour.

The discounting principle (Kelley, 1972) has been suggested as the underlying process through which ASD labelling leads to more favourable impressions of the labelled individual. The discounting principle relates to when an explanation for an occurrence is weakened, or discounted, due to another more plausible alternative explanation being provided. For example, when ASD behaviours were described within the juror studies and given no label, they were interpreted as the defendant acting aggressively with this leading to negative evaluations. However, when participants were told the defendant had ASD and were given some information on behavioural characteristics of the diagnosis, this provided an alternative explanation for why those behaviours occurred and evaluations were more positive.

An important consideration regarding how individuals decide whether or not to discount potential explanations or causes of an effect relates to how these potential explanations are attributed (Fiske & Taylor, 1991; Kelley, 1973). There are two main themes within attribution theory that are used to explain observer evaluations when attributing causal inferences: dispositional and situational attributions (Heider, 1958; Maruna & King, 2009). Dispositional attributions relate to evaluating outcomes as due to internal characteristics of the individual (e.g., personality characteristics, temperament), whilst situational attributions place the onus on factors that are external to the individual (e.g., environmental features).

Overlapping with these evaluations of internal and external factors is the perceived controllability that an individual has over those factors. Mock-jurors have been found to rely upon perceived behavioural controllability in evaluating an individual and forming decisions. Studies that have examined impressions of those labelled as mildly intellectually disabled, which is viewed as a factor that diminishes control over behaviour, found impressions of blameworthiness and criminal responsibility were reduced compared to those labelled of average intelligence (Bottoms, Nysse-Carris, Harris, & Tyda, 2003; Mossière & Maeder,

2016; Najdowski, Bottoms, & Vargas, 2009). Whereas some studies only measured internal and external attributions, Mossière and Maeder (2016) specifically considered participants' perceptions of the controllability of those attributions. Defendants described as having a mental illness were viewed as less in control of their behaviour and were less likely to be found guilty and responsible for the crime compared to defendants described as having a substance abuse disorder who were found to be more in control of their behaviours and thus more likely found guilty.

The way in which the characteristics of an ASD diagnosis were described within studies that examined ASD labelling may have implied that the actions of the ASD individual were more likely attributable to uncontrollable external factors. For example, within their background information, Maras, Marshall, and Sands (2019, p. 1006) described the ASD defendant thus:

> "…has a rigid adherence to routines, which he can get extremely anxious about if he is not able to follow. Unfamiliar situations can also cause a high degree of anxiety that have been known to result in aggression. Mr Parsons has a narrow range of specialist interests, including a preoccupation with trains, and also experiences a high degree of sensory sensitivity".

This description allowed for blame to be placed on the situation being unfamiliar, or the environment causing a sensitivity, and this causing an uncontrollable reaction in the defendant. Similarly, the psychiatric report provided in Berryessa et al. (2015, pp. 166-167) placed a more explicit emphasis upon attributing the criminal action of the defendant to external factors that were a result of the defendant's diagnosis of ASD:

> "They tend to have strong fear and anxiety when their personal space or routines are changed, because this makes them feel trapped. In stressful situations, they are more likely to become paranoid, overreact, and misread others' actions as

threats. They then try to return stressful situations to their comfort level. Dr. Smith explained that MK's condition likely affected MK's view of the situation. MK left the room likely because he felt anxious and "trapped" as the fight became heated and wanted to return the situation to his comfort level. When the roommate followed MK up the stairs, MK likely became more nervous and afraid as the roommate came towards him. MK's condition would not have prevented him from knowing what he was doing or making logical choices, but MK likely misunderstood his roommate's behavior as more aggressive or physically threatening than it actually was. Dr. Smith said that a person like MK would have thought there was a real threat, and that MK likely believed he had to protect himself. Dr. Smith also said that MK's condition explained his behavior during the trial, including the odd facial expressions, disinterest, and the comic book reading".

The perception of criminal responsibility and whether it is internally or externally attributed can have an important impact upon decisions of guilt and sentencing. In a study examining university students' and judges' evaluations of short crime vignettes and suspect background details, Carroll and Payne (1977) found that external attributions for offending were associated with more positive evaluations of a suspect compared to internal attributions. These evaluations included impressions of reduced crime seriousness and risk of reoffending and, for student evaluators, assigning a shorter prison term. Berryessa (2014) interviewed 21 superior court judges in the state of California regarding their impressions of high functioning ASD individuals during trial and how they interpreted the diagnosis. Although based on a small sample size, their qualitative data indicated that judges often understood that the behaviour of ASD individuals was beyond their control and lacking criminal intent. These factors were in turn reported by judges to significantly influence their evaluations of the individual and sentencing decisions.

What Information on ASD should be provided to Police?

Apart from the fact that there is likely to be considerable variability across police jurisdictions, it is unclear what specific information and awareness regarding ASD that police officers receive during training. For example, there have been no studies to date examining the information on ASD received by Australian officers. Hepworth (2017) reported that there was limited police training on ASD in England and Wales (a two-hour online training session on 'mental health' which includes a sub-section on ASD). Chown (2010) reported 70% of police surveyed in England and Wales had received no formal training. Modell and Mak (2008) surveyed 124 US police officers and reported that 80% of the officers were unable to identify a single characteristic of ASD.

Recently, the National Autistic Society (UK) developed a tool to inform and educate police and other emergency services during their initial interaction with an ASD individual. This took the form of an 'Autism Alert Card' that may be carried by an individual and presented to an officer, providing them with information regarding their diagnosis as well as emergency contacts. Depending on the provider, this card may include general details of ASD or be customised to include more personalised and specific details of ASD behaviours displayed by a particular individual. The latter may include details regarding sensory sensitivities, special interests, social anxiety and behaviours that may appear threatening. Police forces in England and Wales advertise and promote the use of these cards and, more recently, such cards are being trialled in Western Australia, both as a carried card and as an alert on their police system when they search that individual's name (Adysti, 2018; Crane et al., 2016). Although the card is designed to be presented at the beginning of the interaction, there has been no research regarding how these cards have been used or their efficacy in educating the officer and reducing stigmatisation of the ASD individual with whom they are interacting.

Cognitive Bias in Evidence Evaluation and Integration

As well as considering the significance of the specific information relayed to observers regarding an ASD diagnosis, it is important to consider how the timing of the delivery of this information may affect evaluations of an individual. As outlined previously, the point at which an ASD individual discloses their diagnosis to police during an interaction may vary – with this sometimes being revealed at the beginning, part way through, or not at all (Crane et al., 2016). Cognitive bias literature highlights that the order in which multiple pieces of evidence are presented may play a role in influencing an observer's impression formation regarding an individual's guilt.

When evaluating a single piece of ambiguous or unambiguous evidence, a context effect may occur whereby the evaluation of that piece of evidence might be biased by other evidence received beforehand but not by evidence received after (Charman, Carbone, Kekessie, & Villalba, 2015). This biasing effect was demonstrated within previous research to be stronger for incriminating compared to exonerating evidence. That is, when incriminating DNA evidence was shown before an ambiguous alibi, the guilty context of the DNA evidence biased processing of the alibi so that the alibi was interpreted as more incriminating (Charman et al.). However, when the alibi was presented first there was a deeper processing of that information in the absence of any context effect regarding guilt or innocence, and subsequent evaluations of that alibi were not biased even when the incriminating or exonerating DNA evidence was presented after.

Although Charman et al. (2015) demonstrated that later evidence did not retrospectively influence the evaluation of an initial piece of evidence, later evidence has been demonstrated to have a stronger effect than earlier evidence on judgments made when integrating multiple pieces of evidence (i.e., a recency effect). Dahl, Brimacombe, and Lindsay (2009) and Price and Dahl (2013) found evidence for a recency effect by which later

evidence (whether incriminating or exonerating) had a greater effect on judgments of a suspect's guilt than evidence of an opposite valence provided first. Charman et al. found that presenting ambiguous evidence after incriminating evidence (thus influenced by incriminating context effects) reduced overall negative judgments of guilt compared to when incriminating evidence was presented last. A differential accessibility hypothesis was proposed to explain these effects whereby evaluators base their judgments of guilt on evidence accessibility, and thus the most recent evidence presented has the greatest effect upon judgments.

Although the studies that have examined context and recency effects provide conflicting results regarding how the order of evidence presentation may affect the evaluation and integration of other evidence, they highlighted that it was important to consider potential order effects for the presentation of an ASD label. It is clear that context effects exist whereby evaluations of one piece of evidence depend on the previous evidence presented. Thus, it is likely that an ASD label provided before an interview would frame more positive evaluations of subsequent ASD behaviour of a suspect within that interview. However, when an ASD label is provided after an interview, it is not clear how this may influence evaluations of suspect behaviour. Studies by Maras, Marshall, and Sands (2019) and Maras, Crane, et al. (2019) examined how the diagnostic label affected the evaluation of subsequent behavioural evidence but did not compare this to how a label presented after the evidence may retrospectively affect evaluations. Although Berryessa et al. (2015) provided the label after the evidence, this was carried out in a repeated measures within-subjects design. Thus, those results were likely influenced by a response bias to answer more desirably after receiving the label information. Based on the evidence from Charman et al. (2015), it is possible that an ASD label provided after an interview will not have a retroactive contextual effect upon more positive processing of ASD behaviour. However, in accordance with the differential

accessibility hypothesis, it is possible that an ASD label provided after an interview will have a recency effect upon more positive judgements of a suspect regardless of how those behaviours were processed.

Present Study

The present study sought to extend previous studies by examining how a label accompanied by a small amount of ASD information influenced observers' impressions when they were able to view the behaviours instead of reading a description of them within a criminal context. It is possible that a visual display of ASD behaviours may render them more salient. Perhaps, then, labelling may not be as effective in deterring the formation of negative behavioural impressions compared to when ASD behaviours are simply described as in previous studies. However, in their meta-analysis of the emotional victim effect literature Nitschke et al. (2019) found no effect of modality (written or visual) upon the influence of heuristic behavioural cues on decision making, suggesting that labelling visual behaviours may be just as effective as labelling written behaviours in countering negative impressions of ASD behaviour.

Using a similar method to Studies 1 and 2b, the present study also extended previous research by comparing the effect of labelling ASD and non-ASD behaviour, as opposed to comparing only a labelled versus a non-labelled ASD defendant. The present study used the same method as Study 2b, incorporating incriminating and exonerating evidence with the addition of a labelling manipulation. This labelling condition used a small card presented to participants which outlined that the suspect had a diagnosis of ASD and then provided general information regarding the diagnosis based on the DSM-5 criteria.

Thus, there were three main issues to be examined in the present study. First, I examined whether making participants aware of an ASD diagnosis using an 'Autism Alert Card' style of presentation changed their impression of the suspect and reduced any negative

ASD behaviour effect under differing levels of evidence. Based on the discounting principle, I hypothesised that for those provided with an ASD label there would be a smaller difference in mean impression ratings and the number of guilty verdicts between those who viewed ASD and non-ASD behaviours compared to those not provided with a label. I hypothesised that, across all behaviour and evidence conditions, there would be more positive mean ratings of impressions and a lower number of guilty verdicts when receiving a label compared to no label. This was in accordance with previous ASD labelling studies that showed more positive impressions of both ASD and non-ASD individuals after they were labelled or mislabelled as having an ASD diagnosis compared to when there was no label (Maras, Crane, et al., 2019; Sasson & Morrison, 2019), even in the presence of strong incriminating evidence (Maras, Marshall, & Sands, 2019). Providing this label may lead to an overcompensation in ratings, as in those previous studies, regardless of whether the suspect appears to have a diagnosis or the evidence is highly incriminating.

The second objective was to examine how impressions of criminal responsibility were affected by ASD labelling. The discounting principle may also be used to understand how, even if the suspect is found guilty, ASD labelling may reduce impressions of criminal responsibility by explaining the suspect's involvement in the crime. Although the present study did not present information on the diagnosis that emphasised external attributions, it was expected that simply being told about the behaviours using an alert card (as based on the diagnostic criteria) would allow participants to infer that those behaviours would then be likely to lead to external factors powering the criminal involvement (e.g., coercion, being unaware of social cues). Specifically, I predicted that those who received an ASD label, and who decided the suspect was guilty, would rate the suspect as more externally responsible, and less internally responsible for criminal involvement, compared to those who did not receive a label.

The third objective was to examine whether the order in which participants were told about the diagnosis (either before or after the interview) affected how that diagnosis was taken into account when evaluating the suspect and other evidence. There were two conflicting hypotheses, based upon cognitive bias literature, regarding whether the ASD label would have a weaker or stronger reduction of the behaviour effect depending on when it was provided. This is the first study to examine how the timing of the delivery of a diagnostic label may affect the interpretation of behavioural evidence displayed in an interview and, accordingly, this final set of hypotheses is exploratory in nature. In line with the research on context effects it might be argued that a label provided before the interview would have a stronger influence on reducing the behaviour effect than evidence provided after the interview. Alternatively, in line with research on recency effects, it might be argued that the label provided after the interview would be more effective at negating the adverse evaluations based on ASD behaviours than if provided before the interview.

Method

Participants

In Study 2b there were approximately 100 participants in each of the six cells. There were some effects within that study that appeared to be meaningful in terms of their effect size but were not statistically significant. This may have been the result of the sample size being too small. In line with these previous results the present study extended the sample size to 150 participants per cell to increase power, and with 18 cells across conditions for Study 3 this led to a total expected sample of 2700. The study was carried out online using Mechanical Turk. The study took approximately 50 minutes to complete and participants received $5.50 for their participation ($5 and an additional 50 cents if they accurately and quickly determined the suspect guilt, with all participants receiving the full amount of $5.50). There were 4665 participants who began the study, with 1143 either failing one of the first

three attention checks and being excluded from the study early or dropping out before completion. Of the 3522 participants who completed the full study, 749 of those were excluded from analyses due to failing any of the seven subsequent attention checks placed throughout. Therefore, the following analyses were based on 2773 participants (1349 male, with an age range from 18 to 78 years (M = 37.96, SD = 12.13)) who correctly answered all attention checks. See Table 39 for the number of participants who were randomly assigned to each condition.

Table 39

Number of participants within each condition

		Evidence			
Behaviour	Label	Incriminating	Exonerating	Neutral	Total
ASD					
	None	153	181	138	472
	Before	158	172	133	463
	After	173	139	145	457
	Total	484	492	416	1392
Non-ASD					
	None	141	158	158	457
	Before	165	165	141	471
	After	149	155	149	453
	Total	455	478	448	1381
Total					
	None	294	339	396	929
	Before	323	337	274	934
	After	322	294	294	910
	Total	939	970	864	

Design

A 2 (suspect behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (label: before interview, after interview, no label) between-subjects design was applied, with participants randomised to one of those 18 conditions. Dependent measures were the same as Study 2b, taken across three time points of the interview and again at the end. These measures included impressions of suspect suspiciousness, memory report,

credibility, likely guilt, feelings of negative affect and verdict. Behavioural expectations were assessed at the end of the interview through ratings of the behavioural appropriateness of the suspect. To maintain consistency with Study 2b, participants were asked to provide from one to ten reasons for the basis of their verdict at the end of the study. However, based upon the results of Study 2b and previous research which indicated participants are not very discriminating about the basis of their decisions, these responses were not analysed further. If participants decided the suspect was guilty as their final verdict or at the final time point, they also rated how internally and externally responsible they found the suspect for his involvement in the crime.

Materials

'Autism Information Card'. Based on the real-world practice and recommendation that ASD individuals carry information regarding their diagnosis in the form of a card, an 'Autism Information Card' was created for the Study 3 label manipulation (see Appendix J). The style of the card was based on templates of other ASD cards found through an online search, with the information on the card adapted from the DSM-5 criteria for an ASD diagnosis (American Psychiatric Association, 2013). Like the other examples of ASD cards, the 'Autism Information Card' had two sides of information. The front explained that the holder of the card has an ASD diagnosis ("this person is on the autism spectrum – this card tells you what to expect when you meet a person who is autistic"), contained the name of the card holder (the suspect, "Michael Jennings"), and an emergency name and contact number which had been blacked out for participants to believe this was for the contact's privacy. On the back of the card was general information regarding what characterises an ASD diagnosis as based on the DSM-5 criteria. This included the following information from domains A and B of the criteria (communicative, and restricted and repetitive interests):

Autistic people may exhibit the following difficulties, beyond their control:

- Deficits in social interaction and communication
    - Difficulties with exchanging conversation, not knowing boundaries, interrupting, lack of understanding of non-literal language
- Nonverbal communicative behaviours that are inappropriate or strange
    - Avoidance or intense fixation of eye contact, lack of emotional expression or exaggerated expression, difficulty understanding and using appropriate gestures
- Difficulties in developing, maintaining and understanding relationships
    - Social disinterest, may seem rude or angry due to lack of understanding other's thoughts and feelings, may be over compliant
- Stereotyped or repetitive behaviours
    - Pacing, rocking, odd vocal tone or volume, repetitive speech
    - Inflexible adherence to routines, or ritualised patterns of verbal or nonverbal behaviour - difficulty with changes and unfamiliar setting
    - Preoccupation with specific interests (topics or objects)
    - Over or under sensitivity to sound, touch, tastes, smells and light

Criminal responsibility scale. With the inclusion of ASD information for Study 3, there was a new rating scale introduced to examine how that information may influence impression formation. Specifically, the scale assessed whether labelling had an effect on participants' evaluations of the suspect's criminal responsibility and blameworthiness. These ratings were then compared across labelling conditions to look at whether those who provided a guilty verdict attributed this to the suspect being more internally or externally responsible for the crime depending on whether or not they were told he had an ASD diagnosis.

In some previous studies measuring criminal responsibility, participants rated on a Likert scale how responsible or blameworthy they judged the suspect to be (Maras, Marshall, & Sands, 2019). In other studies, several items were used to assess internal versus external responsibility (cf. The Causal Dimension Scale, Russell, 1982). Those items that have been used to measure internal responsibility relate to the character of the individual being to blame (e.g., the person committed this crime because they are a bad person or the cause is something that reflects an aspect of the person; Najdowski & Bottoms, 2012). Items measuring external responsibility have related to the individual's environment being to blame (e.g., background was a factor that led the individual to commit the crime or the probable cause of the crime was mostly due to the situation; Graham, Weiner, & Zucker, 1997; Najdowski et al., 2009).

Six items were created for the present study that related to the specific crime and the suspect's situation, with these adapted from those measured within previous studies. Given the literature regarding controllability of behaviour influencing impressions of criminal responsibility, an item was included within the external responsibility items to assess this (item 2). Those items developed to measure internal responsibility were:

1. The suspect was personally responsible for his own involvement in the crime
2. The suspect was involved in the crime for his own personal gain
3. The suspect was involved in the crime due to his personal character

The items that measured external responsibility were:

1. The suspect was involved in the crime due to his living situation
2. The suspect was involved in the crime for reasons beyond his control
3. The suspect was involved in the crime due to pressure or coercion from another individual

Item-total correlations were assessed for this new criminal responsibility scale based on participant responses (See Table 40). The correlations were examined separately for items measuring internal and external responsibility, and with all items combined (and appropriately coded in the same direction). These data patterns suggested it was appropriate to create separate composite internal and external responsibility scores based on averaging responses to the three individual items within each scale. Given the small correlation between external responsibility scale item 1 (regarding the suspect's living situation) and the other items when the internal and external scales were combined, it was not appropriate to create a combined internal and external responsibility score based on averaging all six items.

Table 40

Item-total correlation between each scale item for internal responsibility, external responsibility, and both scales combined

Scale item	Item-total correlation separate scale	Item-total correlation combined scales
Internal responsibility		
1. Personally responsible	.791	.578
2. Involved for personal gain	.794	.538
3. Involved due to personal character	.662	.527
External responsibility		
1. Living situation	.338	.072
2. Reasons beyond his control	.392	.553
3. Pressure or coercion from another individual	.482	.345

Procedure

The procedure was the same as Study 2b except for the provision of the 'Autism Information Card' in two of the three levels of the labelling condition, and an attention check placed after this card to ensure participants read the information (see Appendix J). Participants were randomised to receive this information either before they viewed the

interview with the suspect, after they viewed the interview with the suspect, or to not receive any ASD information. Participants in the 'label before' condition read through the information on the card after viewing the evidence interviews with the fingerprint expert and bystander, but before they viewed the suspect interview. Participants in the 'label after' condition read through the information on the card after the third and final part of the suspect interview was viewed, but before making the final set of ratings regarding impressions of the suspect, verdict and behavioural appropriateness.

The decision to reveal the diagnosis to participants in the 'before' condition prior to the suspect interview, but after the initial expert and bystander evidence was presented, was to mimic a real-life scenario as much as possible. Given that an 'Autism Information Card' was carried by the suspect, it was unlikely that it would be presented to police when they interviewed the expert and bystander (i.e., before even interacting with the suspect). As the main aim of the study was to assess how the label affected the processing of the testimony of the individual with ASD, it was more appropriate to locate that label where it would more likely be revealed in a real-world setting: that is, in conjunction with the interview with the labelled suspect.

Results

Violation of Behavioural Expectations

To assess how suspect behaviour, evidence and ASD labelling affected violations of behavioural expectations, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (label: before, after, none) factorial ANOVA was carried out for ratings of behavioural appropriateness. See Table 41 for the main and interaction effect results. Results revealed significant main effects of behaviour, evidence and ASD label, and a significant interaction between ASD label and evidence.

For the large main effect of behaviour, those who viewed ASD behaviour (M = 3.10, SD = 0.68) judged the suspect as less behaviourally appropriate compared to those in the non-ASD behaviour condition (M = 3.94, SD = 0.70), d = 1.22, 95% CI [1.14, 1.30], consistent with predictions and findings from the previous two studies. The small main effect of evidence revealed that those who viewed incriminating evidence judged the suspect less behaviourally appropriate than those who viewed exonerating and neutral evidence, with neutral less behaviourally appropriate than exonerating (see Table 42).

Table 41

The ANOVA main and interaction effect results for behavioural appropriateness ratings

Effect	*df*	*F*	η^2 [95% CI]	*p*
Behaviour	1, 2755	1049.36	.266 [.240, .291]	<.001
Evidence	2, 2755	35.66	.018 [.010, .026]	<.001
Label	2, 2755	12.86	.006 [.002, .012]	<.001
Behaviour × evidence	2, 2755	0.15	.000 [.000, .001]	.863
Behaviour × label	2, 2755	0.87	.000 [.000, .002]	.418
Evidence × label	4, 2755	2.53	.003 [.000, .006]	.039
Behaviour × evidence × label	4, 2755	1.31	.001 [.000, .004]	.266

For ASD labelling, those who received the label after the interview rated the suspect as less behaviourally appropriate than those who received the label before the interview or not at all, with no difference between the latter two conditions (see Table 42). Lower behavioural appropriateness ratings for the label after compared to the label before condition may support the context hypothesis over the recency hypothesis in explaining how timing of the label affects impressions. However, it was surprising that participants in the label after condition would rate the suspect as more behaviourally inappropriate than those in the no label condition, and that there was no difference between the label before and no label condition. It may be that the specific description of ASD contained within the 'Autism Information Card' outlined that those ASD behaviours appear to be inappropriate, and thus

this led to greater impressions of inappropriate behaviour compared to when there was no label. This effect may have been present only for the label after condition due to a recency effect, whilst the effect of the label before on impressions of behavioural inappropriateness may have weakened by the end of the interview. That is, being told that the suspect has ASD, and that he may appear to act in an inappropriate manner in line with the DSM-5 criteria, may have led participants within that condition to focus more on the presence of those behaviours when making this rating. Thus, although I hypothesised that labelling may induce more positive impressions, for impressions of behavioural appropriateness the label might have led to more negative ratings as the information on the card highlighted that ASD behaviours will appear to be inappropriate.

Table 42

Mean behavioural appropriateness (standard deviation) and Cohen's d effect size [95% confidence intervals] comparing each level of evidence, and each level of ASD label

Effect	Condition	*M (SD)*	2	3
Evidence				
	1. Incriminating	3.37 (0.81)	0.34 [0.25, 0.43]***	0.20 [0.10, 0.29]***
	2. Exonerating	3.64 (0.77)		0.14 [0.05, 0.23]**
	3. Neutral	3.53 (0.82)		
ASD Label				
	1. Before	3.59 (0.77)	0.22 [0.12, 0.31]***	0.06 [-0.03, 0.15].
	2. After	3.42 (0.80)		0.15 [0.05, 0.24]**
	3. None	3.54 (0.84)		

Note. * p <.05, ** p <.01, *** p <.001

For the weak interaction between ASD label and evidence, simple effects analysis revealed that there was a significant effect of label when evidence was incriminating, $F(2, 936) = 4.68$, $p = .010$, $\eta^2 = .010$, 95% CI [.001, .024], exonerating, $F(2, 967) = 3.41$, $p = .033$, $\eta^2 = .007$, 95% CI [.000, .020], and neutral, $F(2, 861) = 4.63$, $p = .010$, $\eta^2 = .011$, 95% CI [.001, .027]. See Table 43 for the interaction results.

Table 43

Mean behavioural appropriateness (standard deviation) and Cohen's d effect size [and 95% confidence intervals] comparing each level of ASD label in each evidence condition

			Evidence	
Evidence	Label	*M (SD)*	2	3
Incriminating				
	1. Before	3.48 (0.77)	0.21 [0.06, 0.37]*	0.21 [0.06, 0.37]*
	2. After	3.31 (0.83)		0.00 [-0.16, 0.16]
	3. None	3.31 (0.82)		
Exonerating				
	1. Before	3.66 (0.74)	0.14 [-0.01, 0.30]	0.05 [-0.10, 0.20]
	2. After	3.55 (0.78)		0.19 [0.03, 0.35]*
	3. None	3.70 (0.79)		
Neutral				
	1. Before	3.62 (0.80)	0.25 [0.09, 0.42]*	0.06 [-0.10, 0.22]
	2. After	3.42 (0.78)		0.18 [0.02, 0.34]
	3. None	3.57 (0.87)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Post-hoc testing revealed that a similar main effect pattern for ASD label was present when evidence was exonerating and neutral (i.e., those who received the label after the interview rated the suspect as less behaviourally appropriate than those who received the label before the interview or not at all). For incriminating evidence, those who received no label, or a label after the interview, assessed the suspect as less behaviourally appropriate than those who received a label before the interview. There was no difference between the no label and label after conditions. The incriminating evidence likely had a strong context effect upon the processing of the subsequent suspect interview (as demonstrated within Study 2b and as demonstrated by the overall lower appropriateness ratings for this condition compared to exonerating and neutral evidence). It was possible that, when processing of the suspect behaviour was biased by incriminating evidence provided beforehand, a label provided after the interview may have no additional effect on impressions of the suspect, and thus those appropriateness ratings were in line with the no label condition. However, when a label was presented after incriminating evidence but before processing the suspect interview, it appears

this may have protected against some of the negative bias of incriminating evidence on behavioural appropriateness ratings.

Interaction between ASD Label, Behaviour and Evidence for Impressions of the Suspect and Feelings of Negative Affect Formed across the Interview

To examine whether labelling reduced the negative effect of ASD behaviour on evaluations of the suspect, and whether that differed depending on evidence, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (label: before, after, none) × 3 (time point: 1, 2, 3) mixed MANOVA was carried out on ratings of credibility, suspiciousness, likely guilt, memory report and negative affect across the three time points of the interview. See Table 44 for the multivariate effects, and Table 45 for the main and interaction univariate effects for each measure for only those multivariate effects that were significant. The multivariate testing indicated significant main effects for each independent variable, as well as several interaction effects. Each main effect will be examined with follow-up testing, as well as those significant interaction effects involving ASD labelling.

Table 44

Multivariate MANOVA results for each effect

	Multivariate *F*-test			
Effect	*df*	*F*	*p*	Wilks' Λ
ASD label	10, 5502	29.44	<.001	.901
Behaviour	5, 2751	116.35	<.001	.825
Evidence	10, 5502	142.57	<.001	.631
Time point	10, 2746	213.38	<.001	.563
ASD label × behaviour	10, 5502	6.88	<.001	.975
ASD label × evidence	20, 9125	1.02	.431	.993
ASD label × time point	20, 5492	22.10	<.001	.857
Behaviour × evidence	10, 5502	0.70	.724	.997
Behaviour × evidence × time point	20, 5490	1.40	.109	.990
ASD label × behaviour × evidence	20, 9124	0.94	.540	.993
ASD label × behaviour × time point	20, 5492	3.29	<.001	.976
ASD label × evidence × time point	40, 10414	1.07	.356	.985
ASD label × behaviour × evidence × time point	40, 10414	1.41	.045	.980

Table 45

Univariate F test results for main and interaction effects for each measure

Effect	Measure	Univariate *F*-test		
		df	*F*	η^2 [95% CI]
ASD label				
	Credibility	2, 2755	80.44	.041 [.029, .053]***
	Suspiciousness	2, 2755	126.79	.064 [.050, .079]***
	Likely guilt	2, 2755	57.65	.026 [.017, .035]***
	Memory report	2, 2755	22.29	.014 [.007, .023]***
	Negative affect	2, 2755	4.10	.003 [.000, .008]*
Behaviour				
	Credibility	1, 2755	40.40	.011 [.005, .018]***
	Suspiciousness	1, 2755	344.47	.091 [.073, .109]***
	Likely guilt	1, 2755	26.04	.006 [.002, .011]***
	Memory report	1, 2755	6.97	.002 [.000, .007]**
	Negative affect	1, 2755	3.97	.001 [.000, .006]*
Evidence				
	Credibility	2, 2755	419.31	.194 [.172, .215]***
	Suspiciousness	2, 2755	197.59	.097 [.080, .115]***
	Likely guilt	2, 2755	720.58	.274 [.253, .295]***
	Memory report	2, 2755	168.27	.101 [.081, .121]***
	Negative affect	2, 2755	14.08	.010 [.004, .018]***
Time point[6]				
	Credibility	1.81, 4998.78	109.50	.036 [.027, .046]***
	Suspiciousness	1.83, 5053.16	468.30	.132 [.117, .150]***
	Likely guilt	1.82, 5012.75	400.99	.120 [.105, .135]***
	Memory report	1.83, 5038.70	2.35	.001 [.000, .003]
	Negative affect	1.91, 5271.49	120.65	.041 [.031, .051]***
ASD label × behaviour				
	Credibility	2, 2755	10.40	.005 [.002, .011]***
	Suspiciousness	2, 2755	19.06	.010 [.004, .017]***
	Likely guilt	2, 2755	8.64	.004 [.001, .008]***
	Memory report	2, 2755	3.67	.002 [.000, .006]*
	Negative affect	2, 2755	0.24	.000 [.000, .002]
ASD label × time point				
	Credibility	3.63, 4998.78	42.33	.028 [.019, .036]***
	Suspiciousness	3.67, 5053.16	56.92	.031 [.023, .039]***
	Likely guilt	3.64, 5012.75	43.74	.026 [.018, .033]***
	Memory report	3.66, 5038.70	3.16	.002 [.000, .005]*
	Negative affect	3.83, 5271.49	16.75	.011 [.006, .017]***
ASD label × behaviour × time point				
	Credibility	3.63, 4998.78	6.52	.004 [.001, .008]***
	Suspiciousness	3.67, 5053.16	11.76	.007 [.003, .010]***
	Likely guilt	3.64, 5012.75	4.78	.003 [.001, .005]**

[6] Mauchly's Test of Sphericity indicated that sphericity was violated, ranging from $W(2) = .898$ to .955, $p < .001$. Since sphericity was violated, the Greenhouse-Geisser adjusted values were examined in the subsequent reporting of any interaction effects involving the within-subjects variable of time

	Memory report	3.66, 5038.70	0.62	.000 [.000, .001]
	Negative affect	3.83, 5271.49	2.21	.002 [.000, .003]
ASD label × behaviour × evidence × time point[7]				
	Credibility	7.26, 4998.78	1.09	.001 [.000, .003]
	Suspiciousness	7.33, 5053.16	3.55	.004 [.001, .006]**
	Likely guilt	7.28, 5012.75	2.79	.003 [.000, .005]**
	Memory report	7.32, 5038.70	1.45	.002 [.000, .004]
	Negative affect	7.65, 5271.49	0.95	.001 [.000, .002]

Note. * p <.05, ** p <.01, *** p <.001

Table 46

Mean impression ratings (standard deviation) and Cohen's d effect size [and 95% confidence intervals] for the main effect of behaviour

	Behaviour		
Measure	ASD	Non-ASD	*d* [95% CI]
Credibility	3.87 (1.17)	4.12 (1.15)	0.22 [0.14, 0.29]***
Suspiciousness	3.10 (0.94)	2.51 (0.90)	0.64 [0.56, 0.72]***
Likely guilt	3.34 (1.43)	3.10 (1.44)	0.17 [0.09, 0.24]***
Memory report	4.40 (0.86)	4.48 (0.88)	0.09 [0.02, 0.17]**
Negative affect	2.13 (1.02)	2.06 (1.00)	0.07 [-0.01, 0.14]*

Note. * p <.05, ** p <.01, *** p <.001

Main effect of behaviour. The behaviour effect found in Study 1 and 2b was replicated, as expected. Those who viewed ASD behaviour judged the suspect as less credible, more suspicious, more likely guilty, and (to a lesser extent) as having a poorer memory report and increased feelings of negative affect compared to those who viewed non-ASD behaviours. See Table 46 for the means and effect sizes for these comparisons. Furthermore, for those who viewed ASD behaviour, $t(1391) = 12.91$, p <.001, $d = 0.19$, 95% CI [0.11, 0.26], and non-ASD behaviour, $t(1380) = 7.70$, p <.001, $d = 0.12$, 95% CI [0.04,

[7] Although there were significant four-way interactions for suspiciousness and likely guilt, they were relatively weak effects and no further attempt was made to interpret these interactions

0.19], there was an increase in negative affect from the baseline measure taken before the interview (ASD: $M = 1.95$, $SD = 0.91$, non-ASD: $M = 1.95$, $SD = 0.89$) to mean negative affect during the interview (ASD: $M = 2.13$, $SD = 1.02$, non-ASD: $M = 2.06$, $SD = 1.00$).

Table 47

Mean impression ratings (standard deviation) and Cohen's d effect size [95% confidence intervals] comparing each level of evidence for each measure

Measure	Evidence	*M (SD)*	2	3
Credibility				
	1. Incriminating	3.31 (1.13)	1.28 [1.18, 1.38]***	0.68 [0.58, 0.77]***
	2. Exonerating	4.62 (0.91)		0.59 [0.49, 0.68]***
	3. Neutral	4.05 (1.04)		
Suspiciousness				
	1. Incriminating	3.20 (0.90)	0.85 [0.76, 0.95]***	0.45 [0.36, 0.54]***
	2. Exonerating	2.44 (0.88)		0.37 [0.28, 0.46]***
	3. Neutral	2.78 (0.97)		
Likely guilt				
	1. Incriminating	4.27 (1.21)	1.74 [1.63, 1.84]***	0.91 [0.82, 1.01]***
	2. Exonerating	2.28 (1.08)		0.75 [0.66, 0.85]***
	3. Neutral	3.15 (1.24)		
Memory report				
	1. Incriminating	4.09 (0.89)	0.84 [0.75, 0.93]***	0.41 [0.31, 0.50]***
	2. Exonerating	4.78 (0.75)		0.43 [0.34, 0.52]***
	3. Neutral	4.44 (0.83)		
Negative affect				
	1. Incriminating	2.23 (1.02)	0.24 [0.15, 0.33]***	0.16 [0.07, 0.25]**
	2. Exonerating	1.99 (0.99)		0.08 [-0.01, 0.17]
	3. Neutral	2.07 (1.00)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Main effect of evidence. The results from Study 2b were again replicated for the main effect of evidence, with significant main effects for all impression ratings. See Table 47 for the means and post-hoc results comparing each level of evidence for all of the measures. Tukey post-hoc testing showed that those who viewed incriminating evidence rated the suspect as less credible, more suspicious, more likely guilty, and having a poorer memory report than those who viewed neutral and exonerating evidence. Neutral evidence in turn produced poorer impressions than exonerating evidence. Additionally, there was a main

effect of evidence upon negative affect, revealing that those who viewed incriminating evidence had increased negative affect compared to those who viewed neutral and exonerating evidence; however, there was no difference for negative affect between neutral and exonerating. As in Study 2b, there was no significant interaction between behaviour and evidence.

Interaction between ASD label and time point. The significant main effect of ASD label was qualified by an interaction with time point for all measures. Due to differences in the timing of the label between conditions (i.e., participants in the ASD label after condition only receiving this information after the interview and just before ratings were made at time point three), this interaction with time point was examined to understand how the timing of the label influenced changes in impression formation for each group. See Table 48 for the means for each level of ASD label for all of the measures at each time point.

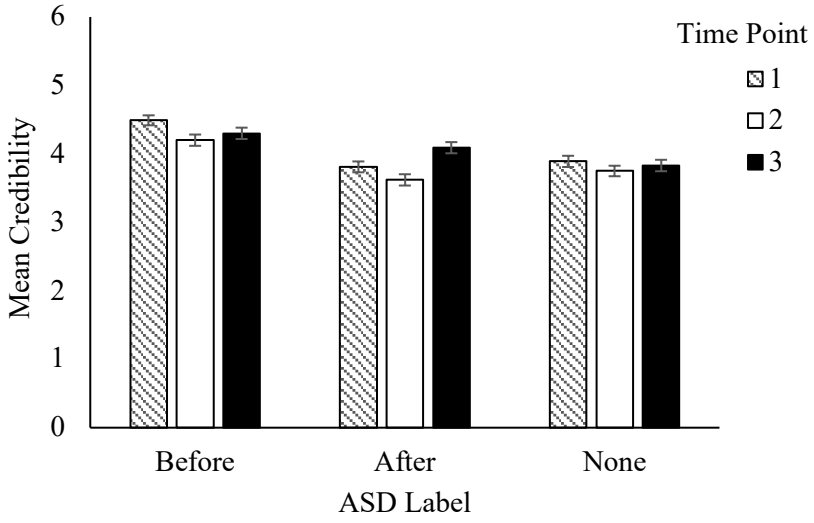
As demonstrated by the means in Table 48, and the error bars represented in Figures 9, 10, 11, 12 and 13, there were comparable mean impression ratings made by those in the label after and no label conditions at time points one and two, whereas impressions of the suspect were more favourable when a label was received before the interview. The label after and no label conditions received the same amount of information across those first two time points, and thus there was no difference expected between these two conditions. Figures 9-13 highlight that similar patterns of increases and decreases in ratings occurred across time points one and two for each label condition. However, for those who received a label after the interview, impressions of the suspect (across all measures) became vastly more favourable from time points two to three compared to the patterns for those who received a label before, and those who received no label. In particular, the effect sizes for separate paired samples *t*-tests revealed that between time points two and three for those who received a label after the interview, there was a much greater increase in impressions of credibility, and a greater

decrease in impressions of suspiciousness, likely guilt, and (to a smaller extent) negative affect compared to those who received an ASD label before, and no label (see Table 49). Increasingly favourable impressions of the suspect's memory report were also detected across these time points, but only for those who received an ASD label after the interview; however, the effect size indices indicate a weak effect.

Table 48

Mean impression ratings (standard deviation) at each time point for each ASD label condition

		ASD label		
Measure	Time point	Before	After	None
Credibility				
	1	4.49 (1.14)	3.81 (1.27)	3.89 (1.29)
	2	4.20 (1.24)	3.62 (1.27)	3.75 (1.27)
	3	4.30 (1.28)	4.09 (1.18)	3.83 (1.30)
	Total	4.33 (1.11)	3.84 (1.12)	3.82 (1.19)
Suspiciousness				
	1	2.36 (0.94)	3.09 (1.08)	3.04 (1.13)
	2	2.64 (0.97)	3.21 (0.99)	3.11 (1.04)
	3	2.36 (0.97)	2.65 (0.92)	2.79 (1.08)
	Total	2.45 (0.89)	2.99 (0.91)	2.98 (1.00)
Likely guilt				
	1	2.67 (1.49)	3.27 (1.56)	3.13 (1.57)
	2	3.16 (1.54)	3.81 (1.49)	3.64 (1.49)
	3	2.87 (1.59)	3.06 (1.50)	3.42 (1.63)
	Total	2.90 (1.43)	3.38 (1.39)	3.39 (1.44)
Memory report				
	1	4.62 (0.93)	4.34 (1.02)	4.42 (1.03)
	2	4.57 (0.96)	4.30 (1.02)	4.40 (0.97)
	3	4.57 (1.04)	4.39 (0.98)	4.36 (1.03)
	Total	4.58 (0.84)	4.34 (0.87)	4.39 (0.88)
Negative affect				
	1	1.92 (0.94)	2.10 (1.04)	2.05 (0.99)
	2	2.09 (1.07)	2.24 (1.12)	2.20 (1.11)
	3	2.05 (1.07)	2.06 (1.04)	2.16 (1.12)
	Total	2.02 (0.98)	2.13 (1.01)	2.14 (1.03)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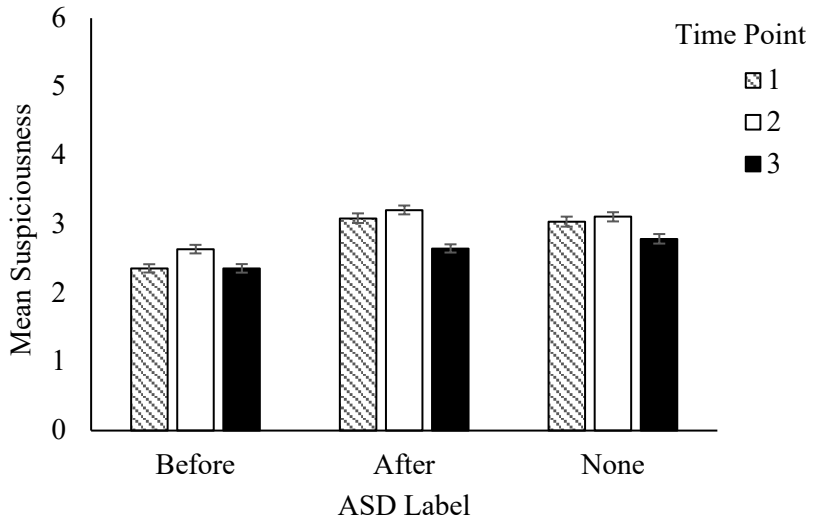
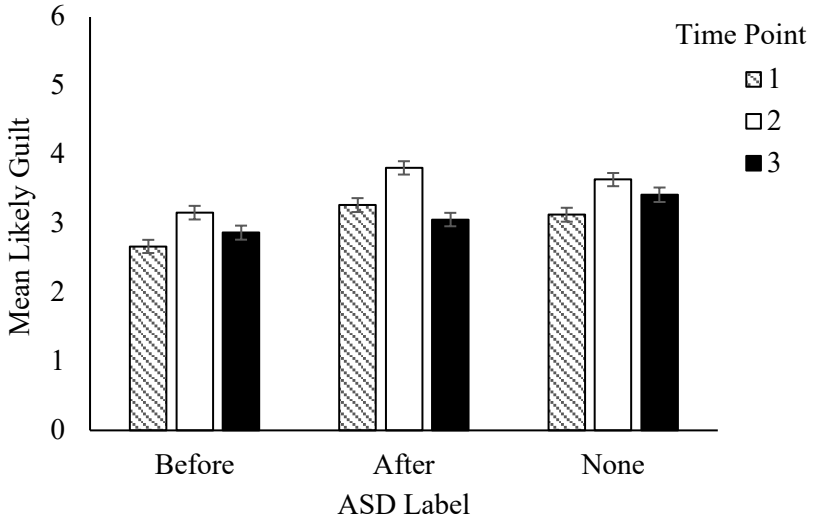
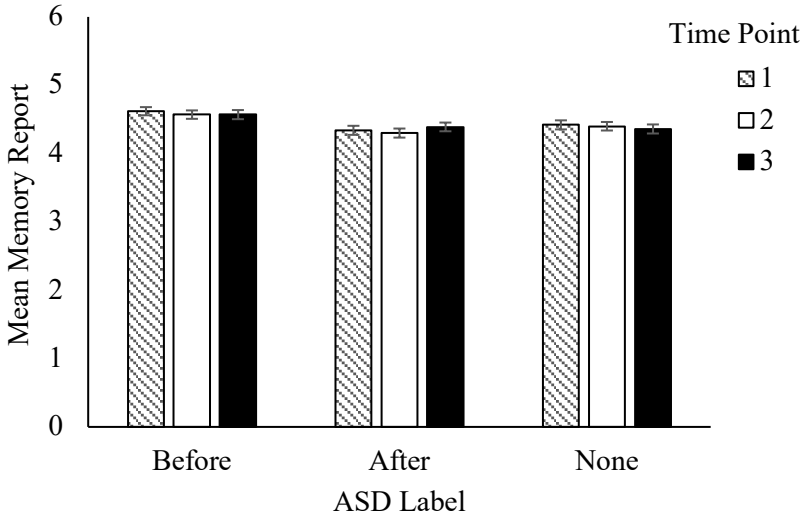
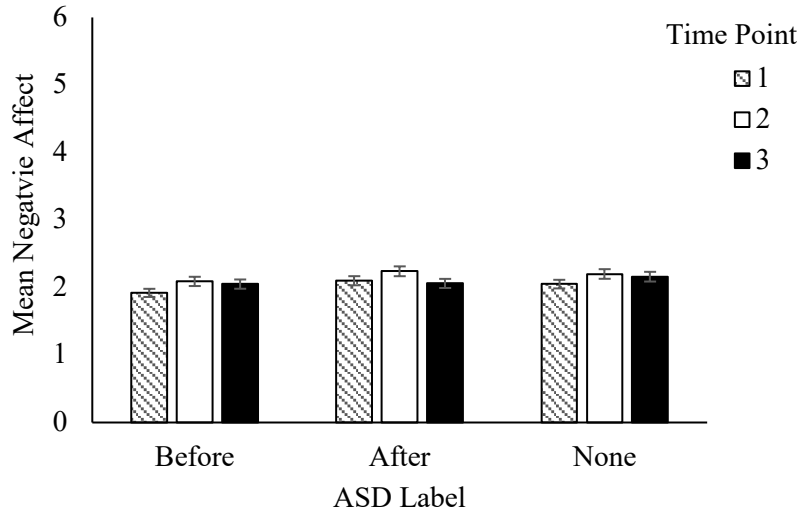
6
5
4
3
2
1
0
Time Point
1
2
3
Before
After
None
ASD Label


Mean Suspiciousness
6
5
4
3
2
1
0
Time Point
1
2
3
Before
After
None
ASD Label


Mean Likely Guilt
6
5
4
3
2
1
0
Time Point
1
2
3
Before
After
None
ASD Label





Figures 9-13. Column graphs for mean credibility, suspiciousness, likely guilt, memory report and negative affect (with error bars that show 95% confidence intervals) at each time point between each ASD label condition.

It is important to note that whilst providing the ASD label after the interview led to more positive impressions by the final time point compared to time points one and two within that condition, those impressions were still significantly more negative than for those participants who received the ASD label before the interview (see Table 50 for the difference in impressions across labelling conditions at time point three). At time point three there were more positive impressions on all measures, except for memory report, for those who received

a label (either before or after) compared to when there was no label provided. Additionally, there were small but significantly more positive impression ratings (for all measures except for negative affect) at time point three for those who received a label before the interview compared to after. Thus, these results show that labelling an ASD diagnosis within the interview context played an important role in reducing negative impressions of the suspect. Moreover, labelling led to more marked reductions in negative impressions when the label was provided prior to the interview. Although the effect sizes for the difference in impressions between the label before and after conditions were rather small, the effects may be important in a real-world context.

Table 49

Paired samples t-test results comparing the mean rating for each measure at time point two and three for each ASD label condition

Measure	Label	*df*	*t*	*d* [95% CI]	*p*
Credibility					
	Before	933	4.47	0.08 [-0.01, 0.17]	<.001
	After	909	17.75	0.38 [0.29, 0.48]	<.001
	None	928	3.68	0.06 [-0.03, 0.15]	<.001
Suspiciousness					
	Before	933	15.44	0.29 [0.20, 0.38]	<.001
	After	909	28.28	0.59 [0.49, 0.68]	<.001
	None	928	10.43	0.30 [0.21, 0.39]	<.001
Likely guilt					
	Before	933	10.80	0.19 [-0.09, 0.28]	<.001
	After	909	23.41	0.50 [0.41, 0.59]	<.001
	None	928	8.39	0.14 [-0.05, 0.23]	<.001
Memory report					
	Before	933	0.10	0.00 [-0.09, 0.09]	.917
	After	909	3.82	0.09 [0.00, 0.18]	<.001
	None	928	1.63	0.04 [-0.05, 0.13]	.104
Negative affect					
	Before	933	2.61	0.04 [-0.05, 0.13]	.009
	After	909	9.53	0.17 [0.07, 0.26]	<.001
	None	928	3.19	0.04 [-0.05. 0.13]	.001

Table 50

Mean impression ratings at the final time point (standard deviation) and Cohen's d effect size [95% confidence intervals] comparing each level of ASD label across measures for the ANOVA main effect of label

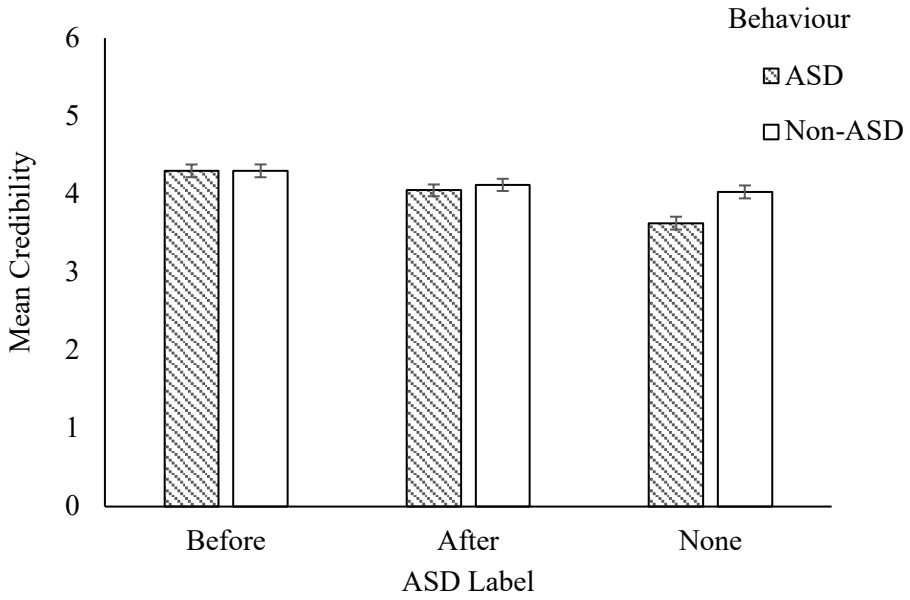
Measure	Label	*M (SD)*	2	3	ANOVA
Credibility					$F(2, 2770) = 32.96, \eta^2 = .023$, 95% CI [.013, .035]***
	1. Before	4.30 (1.28)	0.17 [0.08, 0.26]***	0.36 [0.27, 0.46]***	
	2. After	4.09 (1.18)		0.21 [0.12, 0.30]***	
	3. None	3.83 (1.30)			
Suspiciousness					$F(2, 2770) = 44.63, \eta^2 = .031$, 95% CI [.019, .044]***
	1. Before	2.36 (0.97)	0.31 [0.21, 0.40]***	0.42 [0.33, 0.51]***	
	2. After	2.65 (0.92)		0.14 [0.05, 0.23]*	
	3. None	2.79 (1.08)			
Likely guilt					$F(2, 2770) = 28.97\ \eta^2 = .020$, 95% CI [.011, .031]***
	1. Before	2.87 (1.59)	0.12 [0.03, 0.21]*	0.34 [0.25, 0.43]***	
	2. After	3.06 (1.50)		0.23 [0.14, 0.32]***	
	3. None	3.42 (1.63)			
Memory report					$F(2, 2770) = 11.17, \eta^2 = .008$, 95% CI [.002, .015]***
	1. Before	4.57 (1.04)	0.18 [0.09, 0.27]***	0.20 [0.11, 0.29]***	
	2. After	4.39 (0.98)		0.03 [-0.06, 0.12]	
	3. None	4.36 (1.03)			
Negative affect					$F(2, 2770) = 2.90, \eta^2 = .002$, 95% CI [.000, .006]
	1. Before	2.05 (1.07)	0.01 [-0.08, 0.10]	0.10 [-0.01, 0.19]	
	2. After	2.06 (1.04)		0.09 [0.00, 0.18]	
	3. None	2.16 (1.12)			

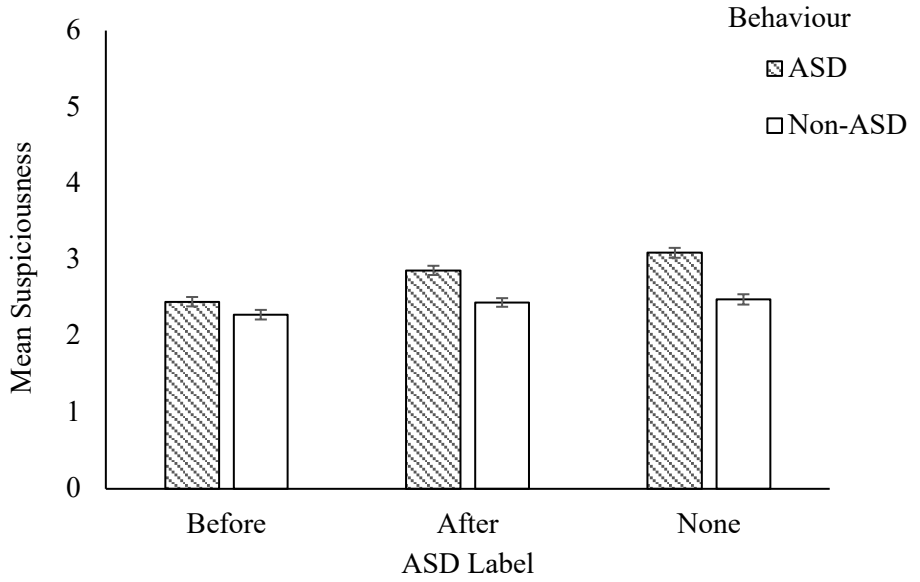
Note. * $p < .05$, ** $p < .01$, *** $p < .001$

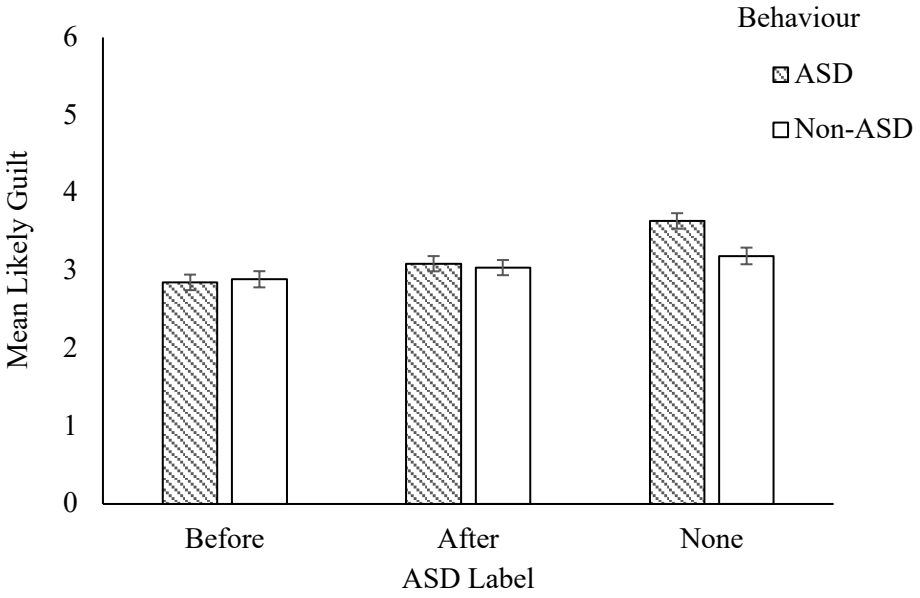
Interaction between ASD labelling, behaviour and time point. There was a significant interaction within the MANOVA model between behaviour and ASD labelling, with univariate tests demonstrating this was qualified by a significant interaction between these two variables with time point for all measures except for memory report and negative affect. Separate independent samples *t*-tests were carried out to examine the effect of

behaviour for each label condition across the interview (see Figures 14, 15 and 16, and Table 51).

An ASD label provided either before or after the interview removed the negative effect of ASD behaviour on impressions of suspect credibility and likely guilt by the end of the interview. This was in contrast to the negative behaviour effect on those same impressions across all time points for those who did not receive a label. The removal of this effect came at time point one when the label preceded the interview and time point three when the label followed the interview. Additionally, labelling reduced the ASD behaviour effect on impressions of suspiciousness compared to when no label was provided (from time point one for the pre-interview label and at time three for the post-interview label). However, the ASD behaviours were still interpreted as significantly more suspicious than non-ASD behaviours for both label conditions, with a larger effect when the label was provided after the interview rather than before it.







Figures 14-16. Column graphs for mean credibility, suspiciousness and likely guilt ratings (with error bars that show 95% confidence intervals), comparing both behaviour conditions for each ASD label condition for ratings made only at time point three.

Table 51

Mean impression ratings (standard deviation) and independent samples t-test results comparing the effect of behaviour at each level of the label condition across all time points

Measure	Time	Label	Behaviour		*t*-test, Cohen's *d* [95% CI]
			ASD	Non-ASD	
Credibility					
	One				
		Before	4.46 (1.17)	4.52 (1.11)	$t(932) = 0.86$, $d = 0.05$ [-0.04, 0.14]
		After	3.54 (1.26)	4.08 (1.22)	$t(908) = 6.66$, $d = 0.44$ [0.34, 0.53]***
		None	3.63 (1.29)	4.17 (1.23)	$t(926.60) = 6.54$, $d = 0.43$ [0.34, 0.52]***
	Two				
		Before	4.20 (1.25)	4.20 (1.24)	$t(932) = 0.05$, $d = 0.00$ [-0.09, 0.09]
		After	3.52 (1.25)	3.72 (1.28)	$t(908) = 2.45$, $d = 0.16$ [0.07, 0.25]*
		None	3.56 (1.26)	3.94 (1.25)	$t(927) = 4.64$, $d = 0.30$ [0.21, 0.39]***
	Three				
		Before	4.30 (1.27)	4.30 (1.28)	$t(932) = 0.04$, $d = 0.00$ [-0.13, 0.13]
		After	4.05 (1.16)	4.12 (1.20)	$t(908) = 0.91$, $d = 0.06$ [-0.07, 0.19]
		None	3.63 (1.28)	4.03 (1.29)	$t(927) = 4.78$, $d = 0.31$[0.18, 0.44]***
Suspiciousness					
	One				
		Before	2.57 (0.98)	2.16 (0.86)	$t(911.48) = 6.83$, $d = 0.44$ [0.35, 0.54]***
		After	3.63 (0.92)	2.56 (0.95)	$t(908) = 17.28$, $d = 1.14$ [1.04, 1.24]***
		None	3.54 (0.97)	2.52 (1.04)	$t(916.16) = 15.45$, $d = 1.01$ [0.92, 1.11]***
	Two				
		Before	2.77 (0.98)	2.50 (0.95)	$t(932) = 4.20$, $d = 0.28$ [0.19, 0.37]***
		After	3.53 (0.92)	2.88 (0.95)	$t(908) = 10.52$, $d = 0.70$ [0.60, 0.79]***
		None	3.43 (0.97)	2.78 (1.01)	$t(927) = 10.05$, $d = 0.66$ [0.56, 0.75]***
	Three				
		Before	2.45 (0.96)	2.28 (0.98)	$t(932) = 2.65$ $d = 0.16$ [0.04, 0.29]**
		After	2.86 (0.93)	2.44 (0.87)	$t(908) = 7.09$, $d = 0.47$ [0.33, 0.60]***
		None	3.09 (1.01)	2.48 (1.05)	$t(927) = 9.06$, $d = 0.59$ [0.46, 0.72]***
Likely guilt					
	One				
		Before	2.70 (1.53)	2.63 (1.45)	$t(932) = 0.69$, $d = 0.05$ [-0.04, 0.14]
		After	3.52 (1.58)	3.02 (1.50)	$t(906.43) = 4.83$, $d = 0.32$ [0.23, 0.42]***
		None	3.38 (1.53)	2.87 (1.58)	$t(927) = 5.01$, $d = 0.33$ [0.24, 0.42]***
	Two				
		Before	3.15 (1.53)	3.16 (1.55)	$t(932) = 0.10$, $d = 0.01$ [-0.08, 0.10]
		After	3.92 (1.45)	3.70 (1.50)	$t(908) = 2.27$, $d = 0.15$ [0.06, 0.24]*
		None	3.82 (1.45)	3.46 (1.51)	$t(927) = 3.73$, $d = 0.24$ [0.15, 0.33]***
	Three				
		Before	2.85 (1.56)	2.89 (1.62)	$t(932) = 0.41$, $d = 0.03$ [-0.10, 0.15]
		After	3.09 (1.51)	3.04 (1.50)	$t(908) = 0.48$, $d = 0.03$ [-0.10, 0.16]
		None	3.64 (1.56)	3.19 (1.66)	$t(927) = 4.31$, $d = 0.28$ [0.15, 0.41]***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Effect of Behaviour, Evidence and ASD Labelling upon Verdict across the Interview

Given that some participants may have entered their final verdict before they were provided with the ASD label (i.e., in the label after condition), verdict was examined across all time points to assess whether labelling reduced the negative effect of ASD behaviour under different evidence conditions. A 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (ASD label: before, after, none) × 2 (verdict: guilty, innocent) repeated measures logistic regression was performed using generalized estimating equations (see Table 52 for results).

Table 52

Results from the tests of model effects for the main and interaction effects

Predictor	Wald χ^2	df	*p* value
Behaviour	8.49	1	.004
ASD label	72.99	2	<.000
Evidence	786.34	2	<.001
Time point	244.85	2	<.001
Behaviour × label	9.66	2	.008
Behaviour × evidence	1.75	2	.417
Behaviour × time point	8.31	2	.016
Label × evidence	2.05	4	.727
Label × time point	57.22	4	<.001
Evidence × time point	68.44	4	<.001
Behaviour × label × evidence	7.06	4	.133
Behaviour × label × time point	11.56	4	.021
Behaviour × evidence × time point	4.21	4	.379
Label × evidence × time point	8.79	8	.361
Behaviour × label × evidence × time point	10.49	8	.232

The tests of model effects indicated a significant main effect for each independent variable and several interactions. The main effects for behaviour and ASD label were qualified by a significant interaction between these two variables, as well as a three-way

interaction between behaviour, ASD label and time point. Additionally, the significant main effect of evidence was qualified by an interaction with time point. There was no significant interaction between behaviour and evidence. Thus, each of these interactions was examined to gain a more comprehensive understanding of the main effects. To control for multiple comparisons within the regression and protect against Type I error, a Bonferroni correction[8] was applied when interpreting *p* values.

Interaction between ASD label and time point. Although the two-way interaction between ASD label and time point was qualified by a significant three-way interaction with behaviour, given that ASD label was a new variable examined within Study 3, this two-way interaction was still of interest to examine. The parameter estimates and chi-square analyses for this interaction (see Figure 17 and Tables 53 and 54) showed that, as predicted, there was a significant decrease in the number of guilty verdicts provided in the ASD label after condition at time point three (when the label was revealed) compared to time points one (7.1% decrease in guilty verdicts) and two (17.2% decrease in guilty verdicts). Furthermore, although the number of guilty verdicts reduced from time point two to three in all label conditions, the magnitude of this reduction was greater for the ASD label after condition (17.2%) compared to the label before (6.5%) and no label conditions (4.8%). Additionally, there was a greater decrease for the label after condition from time point one to three (7.1%) compared to the label before condition (3.8%).

[8] This was calculated as $\alpha = .05$/the number of comparisons made

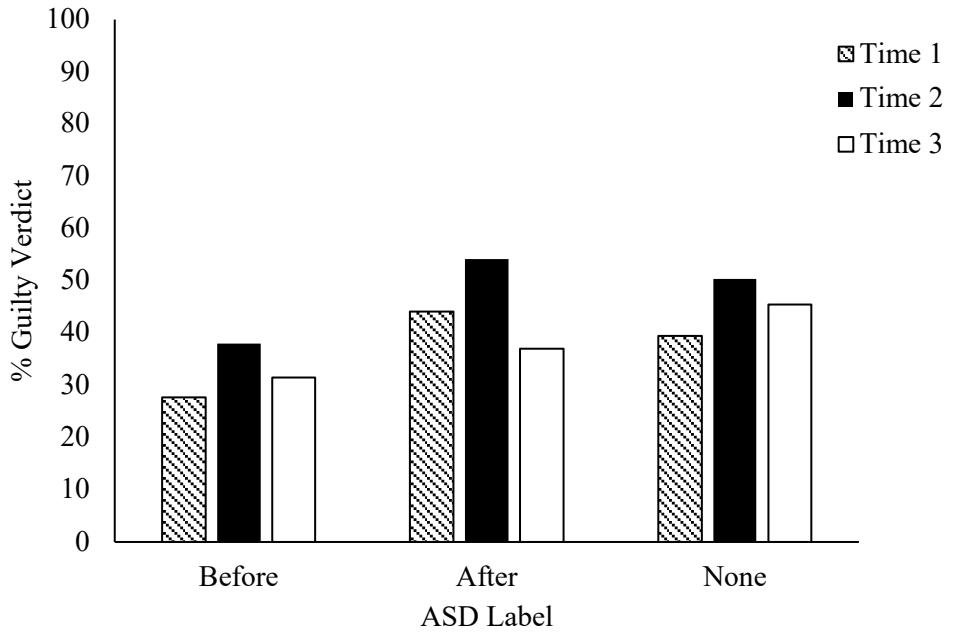


Figure 17. Column graph for the percentage of guilty verdicts for each ASD label condition at each time point.

Table 53

The unstandardised regression coefficients [and 95% confidence intervals] for changes in the percentage of guilty verdicts between the ASD labelling conditions across time points

			Label	
Time point comparison	Label	% Difference	2	3
1 and 2				
	1. Before	+ 10.3%	0.31 [-0.15, 0.77]	-0.03 [-0.49, 0.44]
	2. After	+ 10.1%		-0.08 [-0.48, 0.32]
	3. None	+ 10.8%		
1 and 3				
	1. Before	+ 3.8%	-1.21 [-1.74, -0.68]*	-0.03 [-0.51, 0.46]
	2. After	- 7.1%		-0.56 [-0.98, -0.15]
	3. None	+ 6.0%		
2 and 3				
	1. Before	- 6.5%	-0.90 [-1.34, -0.46]*	-0.06 [-0.51, 0.40]
	2. After	- 17.2%		-0.65 [-1.03, -0.26]*
	3. None	- 4.8%		

Note. * is significant for Bonferroni correction at $p < .006$

Table 54

Percentage (and number) of guilty verdicts at each time point for each label condition and chi-square comparison for differences in verdict between each time point

ASD label	Time point	% guilty verdict (*n*)	Time point	
			2	3
Before				
	1	27.7% (259)	$\chi^2(1) = 21.90, \phi = .109$, 95% CI [.045, .172]*	$\chi^2(1) = 2.97, \phi = .041$, 95% CI [-.023, .105]
	2	38.0% (355)		$\chi^2(1) = 8.50, \phi = .069$, 95% CI [.005, .133]*
	3	31.5% (294)		
After				
	1	44.1% (401)	$\chi^2(1) = 18.21, \phi = .101$, 95% CI [.036, .165]*	$\chi^2(1) = 9.05, \phi = .072$, 95% CI [.007, .136]*
	2	54.2% (493)		$\chi^2(1) = 53.21, \phi = .172$, 95% CI [.108, .234]*
	3	37.0% (337)		
None				
	1	39.5% (367)	$\chi^2(1) = 21.32, \phi = .108$, 95% CI [.044, .171]*	$\chi^2(1) = 6.66, \phi = .061$, 95% CI [-.003, .125]*
	2	50.3% (467)		$\chi^2(1) = 3.99, \phi = .047$, 95% CI [-.017, .111]
	3	45.5% (423)		

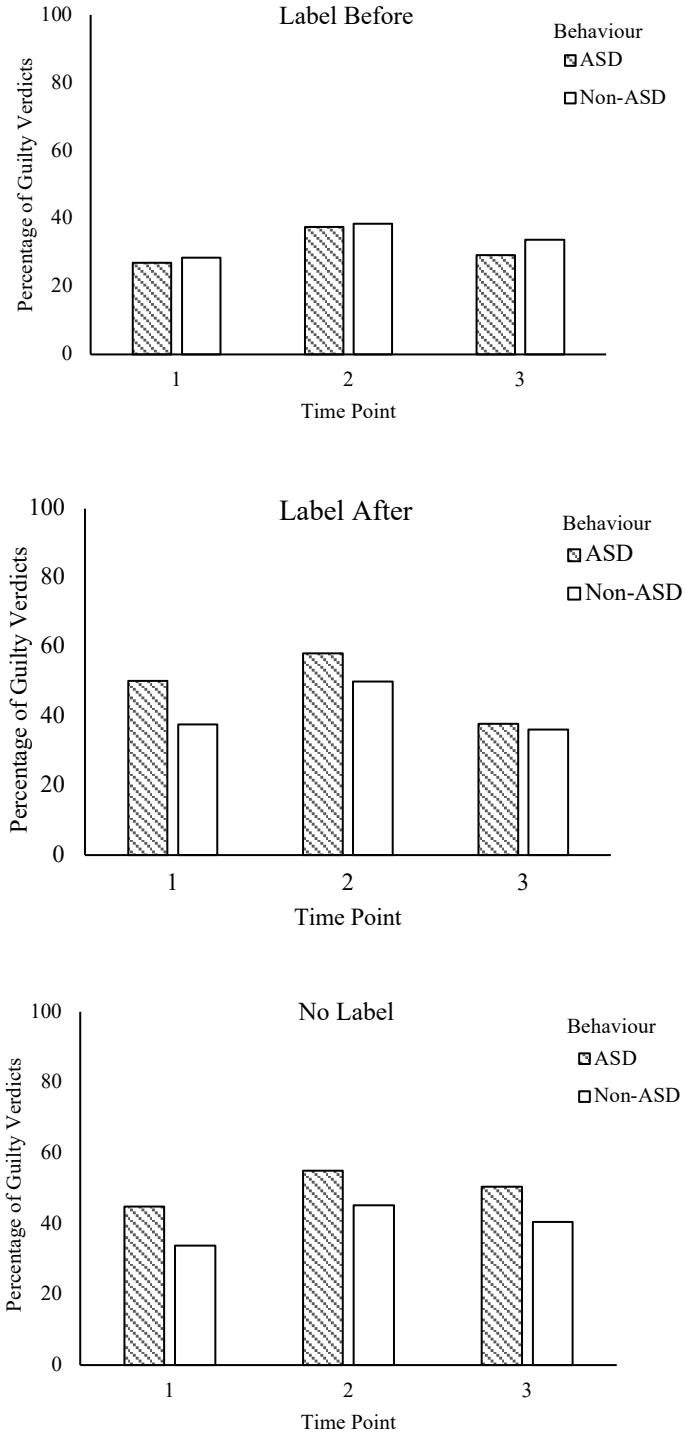
Note. * is significant for Bonferroni correction at $p < .016$

Receiving the ASD label after the interview led to impressions that the suspect was more likely innocent at time point three compared to the earlier two time points when the ASD diagnosis was not known. Across all labelling conditions there was a similar increase in the number of guilty verdicts between time points one and two of the interview. This was expected given that each of those labelling conditions received the same information over the first two time points once the interview began.

The decrease in guilty verdicts by the final time point meant that the label after condition provided significantly fewer guilty verdicts than the no label condition at time point three, $\chi^2(1) = 13.35, \phi = .086$, 95% CI [.040, .131]. But those in the label after condition still perceived the suspect as guiltier than those in the label before condition, with a small but

significantly greater number of guilty verdicts, $\chi^2(1) = 6.08$, $\phi = .059$, 95% CI [.013, .104]. The label before condition provided fewer guilty verdicts than the no label condition, $\chi^2(1) = 38.27$, $p < .001$, $\phi = .144$, 95% CI [.099, .188]. Thus, the label after was having a compensatory effect upon verdict when it was provided at the end of the interview, but the protective effect of the label provided before the interview was much stronger.

Interaction between behaviour, ASD label and time point. Given that the two-way interaction between behaviour and ASD label was qualified by a three-way interaction between these variables and time point, the two-way interaction was superfluous to examine and thus only the three-way interaction was tested. The three-way interaction, and the chi-square analyses (see Figures 18, 19, 20, and Tables 55 and 56), showed that the significant negative effect of ASD behaviour on a greater number of guilty verdicts was maintained across all time points for those who did not receive any ASD label, as expected. There was no significant effect of behaviour upon verdict for those who received an ASD label before the interview, and this lack of behaviour effect persisted across all time points of the interview. Thus, ASD labelling before the interview had a protective effect over the negative influence of ASD behaviour which lasted throughout the interview. Finally, for those who received an ASD label after the interview, there was a much larger decrease in the effect of behaviour at time point three (1.7% difference in guilt between behaviour conditions) compared to time point one (12.6%), but with no significant difference between times two (8.1%) and three. For this group, the effect of behaviour at time points one and two indicated that those who viewed ASD behaviour provided a greater number of guilty verdicts than those who viewed non-ASD behaviour. However, at time point three, after receipt of the ASD label, there was no significant effect of behaviour and no difference in verdict. The label provided at the end of the interview thus had a compensatory effect upon the negative behaviour effect that had previously occurred before the introduction of this label.



Figures 18-20. Column graphs comparing the percentage of guilty verdicts between each behaviour condition across all time points, separately for each label condition.

Table 55

The unstandardised regression coefficients [and 95% confidence intervals] for changes in the number of guilty verdicts between the ASD and non-ASD behaviour conditions over the different time points of the interview for each label condition

Label	Time point comparison	*B*	[95% CI]	*p*
Before				
	1 and 2	-0.27	[-0.66, 0.13]	.182
	1 and 3	0.37	[-0.04, 0.77]	.074
	2 and 3	0.10	[-0.25, 0.45]	.583
After				
	1 and 2	-0.48	[-0.99, 0.03]	.063
	1 and 3	0.83	[0.27, 1.39]	.004
	2 and 3	0.35	[-0.16, 0.85]	.182
None				
	1 and 2	-0.11	[-0.59, 0.38]	.663
	1 and 3	0.21	[-0.33, 0.75]	.441
	2 and 3	0.10	[-0.38, 0.58]	.673

Note. Significance for Bonferroni correction $p < .006$

Table 56

Percentage (and number) of guilty verdicts and chi-square results for the effect of behaviour on verdict for each label condition across each time point

		Behaviour			Chi-square		
Label	Time	ASD	Non-ASD	% difference	χ^2	*df*	ϕ [95% CI]
Before							
	1	27% (125)	28.5% (134)	1.5%	0.18	1	.016 [-.048, .080]
	2	37.6% (174)	38.4% (181)	0.8%	0.04	1	.009 [-.055, .073]
	3	29.2% (135)	33.8% (159)	4.6%	2.08	1	.050 [-.014, .114]
After							
	1	50.3% (230)	37.7% (171)	12.6%	14.10	1	.127 [.063, .190]*
	2	58.2% (266)	50.1% (227)	8.1%	5.68	1	.081 [.016, .145]
	3	37.9% (173)	36.2% (164)	1.7%	0.20	1	.017 [-.048, .082]
None							
	1	44.9% (212)	33.9% (155)	11%	11.30	1	.112 [.046, .177]*
	2	55.1% (260)	45.3% (207)	9.8%	8.51	1	.098 [.032, .164]*
	3	50.4% (238)	40.5% (185)	9.9%	8.86	1	0.10 [.034, .116]*

Note. * is significant for Bonferroni correction at $p < .016$

Interaction between evidence and time point. The parameter estimates and chi-square follow up analyses showed that there was a greater increase in guilty verdicts between time points one and two for those who viewed neutral (17.9%) compared to incriminating evidence (4.1%) (see Tables 57 and 58). This may have been due to the incriminating guilty verdicts sitting at a higher level than the neutral evidence, and thus having less room to increase. There were no other significant differences between evidence conditions for the pattern of change in verdict over the time points. This indicated that, except for the difference between the aforementioned time points, the effect of evidence was similar across the interview for each group (i.e., a greater number of guilty verdicts for incriminating compared to neutral and, in turn, exonerating evidence). The chi-square analysis indicated that for all evidence conditions there was an increase in guilty verdicts from time point one to two, with the greatest increase for the neutral evidence condition, and a decrease for all evidence conditions from time point two to three.

Table 57

The interaction effect showing the unstandardised regression coefficients [and 95% confidence intervals] for the changes in the number of guilty verdicts between each evidence condition over the different time points

			Label	
Time point comparison	Evidence	% Difference	2	3
1 and 2				
	1. Incriminating	4.1%	-0.95 [-1.78, -0.11]	-1.07 [-1.56, -0.59]*
	2. Exonerating	9.7%		-0.21 [-0.73, 0.30]
	3. Neutral	17.9%		
1 and 3				
	1. Incriminating	6.8%	1.08 [0.26, 1.91]	0.61 [0.12, 1.10]
	2. Exonerating	4.8%		0.42 [0.26, -0.10]
	3. Neutral	5.1%		
2 and 3				
	1. Incriminating	10.9%	0.13 [-0.43, 0.69]	-0.46 [-0.87, -0.06]
	2. Exonerating	4.9%		0.21 [-0.17, 0.58]
	3. Neutral	12.8%		

*Note. * is significant for Bonferroni correction at p <.006*

Table 58

Percentage (and number) of guilty verdicts and chi-square comparison between each time point for each level of evidence

Evidence	Time point	% guilty verdict (*n*)	Time point chi-square	
			2	3
Incriminating				
	1	73.5% (690)	$\chi^2(1) = 4.16, \phi = .048$, 95% CI [-.016, .112]	$\chi^2(1) = 10.40, \phi = .074$, 95% CI [.010, .137]*
	2	77.6% (729)		$\chi^2(1) = 27.57, \phi = .122$, 95% CI [.058, .185]*
	3	66.7% (626)		
Exonerating				
	1	9.3% (90)	$\chi^2(1) = 36.76, \phi = .139$, 95% CI [.077, .200]*	$\chi^2(1) = 10.56, \phi = .075$, 95% CI [.012, .137]*
	2	19.0% (184)		$\chi^2(1) = 7.90, \phi = .065$, 95% CI [.002, .127]*
	3	14.1% (137)		
Neutral				
	1	28.6% (247)	$\chi^2(1) = 58.52, \phi = .185$, 95% CI [.120, .249]*	$\chi^2(1) = 4.99, \phi = .055$, 95% CI [-.012, .121]
	2	46.5% (402)		$\chi^2(1) = 29.15, \phi = .131$, 95% CI [.065, .196]*
	3	33.7% (291)		

Note. * is significant for Bonferroni correction at $p < .016$

Comparing groups based on labelling matched with presentation of behaviours.

Within the preceding analyses, verdict was examined when both the ASD and non-ASD behaviours were labelled with a diagnosis of ASD or unlabelled. However, there was no comparison of when those behaviours were appropriately labelled: for example, when non-ASD behaviours were appropriately not labelled as ASD (no label provided), and when ASD behaviours were appropriately labelled as ASD either before or after the interview. This was of interest to compare given this appropriate labelling of both behaviours may more accurately reflect what would happen during a real-life interaction. That is, it may be unlikely that a non-ASD individual would claim they have an ASD diagnosis during an interaction with police.

The difference in verdict at the final time point between each group of interest (e.g., ASD behaviour with a label before or after, and non-ASD behaviour with no label) was compared with several chi-square analyses. See Table 59 for the percentage of guilty verdicts within each condition. The percentages of guilty verdicts (supported by the associated chi-square results) when the ASD behaviours were qualified by an ASD label after the interview were similar to when the non-ASD behaviours when not given a label, with no significant difference between these conditions for verdict, $\chi^2(1) = 0.56$, $p = .456$, $\phi = .027$, 95% CI [-.038, .092]. However, participants who viewed ASD behaviours that were qualified by an ASD label before they viewed the interview were significantly less likely to decide the suspect was guilty than those who viewed the non-ASD behaviours and did not receive an ASD label, $\chi^2(1) = 12.52$, $p < .001$, $\phi = .119$., 95% CI [.055, .182] Although this was only a small effect, this result indicated that a suspect displaying ASD behaviours and appropriately labelled before an interview may be viewed more favourably than a suspect displaying no ASD behaviours and appropriately not given an ASD label.

It was also important to assess how labelling of non-ASD behaviours affected decision making as some ASD individuals do not necessarily display those more visible ASD behaviours. For non-ASD behaviours and a label provided before the interview, the suspect was determined as less likely guilty at the final time point than when there was no label, $\chi^2(1) = 4.21$, $p = .040$, $\phi = .070$, 95% CI [.006, .134]. However, there was no difference for non-ASD behaviours for verdict when they received a label after the interview or no label, $\chi^2(1) = 1.59$, $p = .208$, $\phi = .044$, 95% CI [-.021, .109]. Therefore, it may also be possible that if an ASD individual does not display the behaviours that are suggested as likely to be present (that is, they resemble a non-ASD behaving suspect), they may still be treated more fairly if they provide a label to observers before the interview, but not after.

Table 59

Percentage (and number) of participants who provided a guilty verdict at the final time point for each behaviour and labelling condition

	Label		
Behaviour	Before	After	None
ASD	29.2% (135)	37.9% (173)	50.4% (238)
Non-ASD	33.8% (159)	36.2% (164)	40.5% (185)

Confidence in verdict across conditions. It is possible that exposure to an ASD label and information regarding the ASD behaviours will make participants more confident in their verdict as this provides further evidence on which to base decision making. However, it is also possible that this label and information may oppose the views held by participants regarding the suspect's behaviour, leading to reduced confidence in their decision making. To assess how labelling influenced verdict confidence, and how it interacted with behaviour and evidence, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (ASD label: before, after, none) factorial ANOVA was carried out for confidence in verdict at the final time point. See Tables 60 and 61 for ANOVA results and descriptive statistics for verdict confidence within each condition. Interestingly, this revealed that there was no main effect of ASD label for verdict confidence, but there was an interaction between label and evidence. There were also main effects of behaviour and evidence. For behaviour, participants were less confident in their verdict when they viewed ASD behaviours (M = 71.27, SD = 21.42) compared to non-ASD behaviours (M = 73.32, SD = 20.45), although this was a very small effect (see Table 60).

Table 60

ANOVA results for main effects and interactions on verdict confidence at the final time point

Predictor	*df*	*F*	*p*	η^2 [95% CI]
Behaviour	1, 2755	6.45	.011	.002 [.000, .007]
Evidence	2, 2755	31.95	<.001	.022 [.012, .033]
ASD label	2, 2755	2.57	.077	.002 [.000, .006]
Behaviour × evidence	2, 2755	0.61	.543	.000 [.000, .003]
Behaviour × ASD label	2, 2755	2.42	.089	.002 [.000, .005]
Evidence × ASD label	4, 2755	6.82	<.001	.010 [.003, .016]
Behaviour × evidence × ASD label	4, 2755	1.58	.177	.002 [.000, .005]

Table 61

Mean percentage of confidence (standard deviation) in verdict at the final time point for each behaviour, evidence and label condition

		Evidence			
Behaviour	Label	Incriminating	Exonerating	Neutral	Total
ASD					
	None	71.77 (22.08)	68.62 (21.42)	67.41 (21.01)	69.29 (21.54)
	Before	70.72 (20.29)	80.31 (17.80)	68.47 (23.26)	73.64 (20.95)
	After	67.03 (22.42)	78.45 (20.80)	68.31 (19.54)	70.91 (21.59)
	Total	69.74 (21.69)	75.48 (20.69)	68.06 (21.22)	71.27 (21.42)
Non-ASD					
	None	72.79 (22.77)	75.46 (19.01)	72.85 (18.18)	73.73 (19.97)
	Before	69.79 (22.08)	80.68 (19.76)	70.91 (20.02)	73.94 (21.23)
	After	70.41 (20.67)	76.13 (19.58)	70.09 (19.58)	72.26 (20.09)
	Total	70.92 (21.84)	77.48 (19.56)	71.32 (19.23)	73.32 (20.45)
Total					
	None	72.26 (22.38)	71.81 (20.59)	70.31 (19.70)	71.47 (20.89)
	Before	70.25 (21.20)	80.49 (18.75)	69.73 (21.65)	73.79 (21.08)
	After	68.60 (21.66)	77.22 (20.17)	69.21 (19.54)	71.58 (20.86)
	Total	70.31 (21.76)	76.47 (20.15)	69.75 (20.27)	

Table 62

Mean (standard deviation) verdict confidence at the final time point and Cohen's d effect size [95% confidence intervals] comparing the effect of evidence for each label condition

ASD label	Evidence	*M (SD)*	2	3
Before				
	1. Incriminating	70.25 (21.20)	0.51 [0.35, 0.66]***	0.02 [-0.14, 0.19]
	2. Exonerating	80.49 (18.75)		0.53 [0.37, 0,68]***
	3. Neutral	69.73 (21.65)		
After				
	1. Incriminating	68.60 (21.66)	0.41 [0.25, 0.57]***	0.03 [-0.13, 0.19]
	2. Exonerating	77.22 (20.17)		0.40 [0.24, 0.57]***
	3. Neutral	69.21 (19.54)		
None				
	1. Incriminating	72.26 (22.38)	0.02 [-0.14, 0.18]	0.09 [-0.07, 0.25]
	2. Exonerating	71.81 (20.59)		0.07 [-0.08, 0.23]
	3. Neutral	70.31 (19.70)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Given that the main effect of evidence was qualified by an interaction with ASD label, the interaction was examined. Simple effects analysis for the interaction between ASD label and evidence (see Table 62 for post-hoc results) showed that when receiving a label before, $F(2, 931) = 28.23$, $p < .001$, $\eta^2 = .056$ [.030, .085], and after the interview, $F(2, 907) = 16.49$, $p < .001$, $\eta^2 = .034$ [.014, .058], those who viewed exonerating evidence were more confident than those who viewed incriminating or neutral evidence. There was no difference between incriminating and neutral evidence for an ASD label received before or after the interview. However, when no ASD label was provided, there was no difference in verdict confidence for any level of the evidence, $F(2, 926) = 0.71$, $p = .494$, $\eta^2 = .001$, 95% CI [.000, .009]. It was possible that receiving ASD information confirmed what was relayed within the exonerating evidence, with both of those manipulations supporting a more likely innocent impression of the suspect. Thus, having this potential confirmation of evidence may have led

participants to be more confident in their verdict in those conditions. This was in comparison to those who did not receive a label and therefore were not provided with any additional information to confirm the exonerating evidence. Thus, this may explain why there was no difference across evidence conditions when there was no label provided.

Interpretations of Criminal Responsibility

ASD labelling produced more positive impressions of the suspect and fewer guilty verdicts and, in some cases, labelling interacted with the behaviour variable to reduce the negative effects that ASD behaviour had upon impressions of the suspect and verdict. To examine whether labelling also reduced impressions of criminal responsibility, and whether the effect interacted with behaviour and evidence, a 2 (behaviour: ASD, non-ASD) × 3 (evidence: incriminating, exonerating, neutral) × 3 (label: before, after, none) factorial MANOVA was carried out for mean internal and external responsibility scores provided by those who decided the suspect was guilty as their final decision or at the final time point (n = 1143). See Table 63 for the main effect and interaction results. First, it should be noted that across all conditions for each independent variable, the suspect was considered overall more internally than externally responsible for involvement in the crime (see Tables 64 and 65 for the paired samples t-test results). Further, the factorial MANOVA revealed significant main effects of ASD label and evidence for internal and external responsibility, as well as an effect of behaviour for internal responsibility. Although a significant interaction qualified the main effects of behaviour and ASD label for ratings of internal responsibility, each of the main effects will also be reported given that the previous studies in this thesis have not explored attributions of responsibility.

For the ASD label main effect (see Table 64), those who received an ASD label both before and after the interview rated the suspect less internally responsible and placed more responsibility on external factors than those who received no label. There was no difference

in internal or external responsibility when the label was presented before or after the interview. This main effect was in line with predictions that an ASD diagnosis would lead to interpretations that the ASD individual was more likely involved in the crime for reasons beyond his control, and less personally blameworthy than when there was no explanation by way of a diagnosis.

Table 63

MANOVA results for main effects and interactions on internal and external criminal responsibility ratings

Predictor	Responsibility	*df*	*F*	η^2 [95% CI]
Behaviour				
	Internal	1, 1125	13.35	.011 [.002, .025]***
	External	1, 1125	0.99	.001 [.000, .007]
Evidence				
	Internal	2, 1125	10.01	.016 [.005, .032]***
	External	2, 1125	4.24	.007 [.000, .019]*
ASD label				
	Internal	2, 1125	18.98	.030 [.014, .051]***
	External	2, 1125	9.33	.016 [.000, .032]***
Behaviour × evidence				
	Internal	2, 1125	2.29	.004 [.000, .012]
	External	2, 1125	0.04	.000 [.000, .001]
Behaviour × ASD label				
	Internal	2, 1125	3.14	.005 [.000, .015]*
	External	2, 1125	2.98	.005 [.000, .015]
Evidence × ASD label				
	Internal	4, 1125	0.79	.003 [.000, .008]
	External	4, 1125	0.45	.002 [.000, .005]
Behaviour × evidence × ASD label				
	Internal	4, 1125	0.57	.002 [.000, .006]
	External	4, 1125	0.97	.003 [.000, .009]

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

For the main effect of behaviour, ASD behaviours ($M = 4.27$, $SD = 1.17$) were interpreted as less internally responsible than non-ASD behaviours ($M = 4.44$, $SD = 1.08$), $d = 0.15$, 95% CI [0.03, 0.27]; however, there was no behaviour effect for external responsibility with no difference between ASD ($M = 3.36$, $SD = 1.00$), and non-ASD behaviours ($M = 3.33$, $SD = 0.98$), $d = 0.03$, 95% CI [-0.09, 0.15]. For both ASD, $t(600) =$

13.78, p <.001, d = 0.84, 95% CI [0.72, 0.95], and non-ASD behaviour, $t(541) = 16.63$, p <.001, d = 1.08, 95% CI [0.95, 1.20], paired samples t-tests indicated that overall there was a higher mean rating of internal compared to external responsibility.

Table 64

Means (standard deviation) and Cohen's d effect size [and 95% confidence intervals] for the main effect of ASD label for internal and external criminal responsibility ratings

ASD label	Responsibility	*M (SD)*	2	3	Paired samples *t*-test
1. Before					$t(316) = 7.43$, $d = 0.62$ [0.46, 0.77]***
	Internal	4.16 (1.13)	0.02 [-0.13, 0.17]	0.42 [0.28, 0.57]***	
	External	3.50 (1.01)	0.10 [0.05, 0.25]	0.33 [0.18, 0.47]***	
2. After					$t(382) = 9.96$, $d = 0.74$ [0.59, 0.89]***
	Internal	4.18 (1.12)		0.41 [0.27, 0.55]***	
	External	3.40 (0.98)		0.23 [0.09, 0.36]**	
3. None					$t(442) = 19.62$, $d = 1.41$ [1.26, 1.56]***
	Internal	4.63 (1.09)			
	External	3.18 (0.96)			

Note. * p <.05, ** p <.01, *** p <.001

Lastly, for the main effect of evidence (see Table 65), post-hoc analyses revealed that those who viewed incriminating evidence found the suspect more internally responsible than those who viewed exonerating and neutral evidence, with no difference between exonerating and neutral. Post-hoc analysis revealed there was no difference in ratings of external responsibility between any level of evidence.

See Figure 21 for a visual representation of the interaction between behaviour and ASD label for ratings of internal responsibility, and Table 66 for the independent samples t-test results. For those who received an ASD label (either before or after the interview), the

suspect was rated as less internally responsible for the crime when displaying ASD rather than non-ASD behaviour. In contrast, there was no difference for either behaviour condition in ratings of internal responsibility when there was no ASD label provided. This interaction pattern may suggest that there was a greater reduction in impressions of internal responsibility for criminal involvement when the behaviours of the suspect matched those that were described within the diagnostic information. An alternative explanation may be that more obvious signs of a diagnosis (i.e., the ASD behaviour condition) may be interpreted as indicating greater severity of that condition, and thus the individual is seen as less internally responsible than one whose behaviours suggest a less severe diagnosis (i.e., the non-ASD behaviour condition).

Table 65

Mean (standard deviation) internal and external responsibility ratings and Cohen's d effect size [and 95% confidence intervals] for the main effect of evidence

Evidence	Responsibility	*M (SD)*	2	3	Paired samples *t*-test
1. Incrim					$t(670) = 18.74$, $d =$ 1.14 [1.02, 1.25]***
	Internal	4.45 (1.08)	0.28 [0.10, 0.45]**	0.18 [0.05, 0.31]*	
	External	3.28 (0.97)	0.15 [-0.02, 0.33]	0.15 [0.01, 0.28]	
2. Exon					$t(154) = 5.59$, $d =$ 0.60 [0.37, 0.83]***
	Internal	4.14 (1.26)		0.09 [-0.10, 0.28]	
	External	3.43 (1.10)		0.01 [-0.18, 0.20]	
3. Neutral					$t(316) = 9.51$, $d =$ 0.78 [0.62, 0.94]***
	Internal	4.25 (1.16)			
	External	3.42 (0.95)			

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 66

Mean (standard deviation) internal responsibility rating and independent samples t-test results for the effect of behaviour for each label condition

	Behaviour					
ASD label	ASD	Non-ASD	*df*	*t*	*d [95% CI]*	*p*
Before	4.02 (1.10)	4.28 (1.14)	315	2.10	0.32 [0.10, 0.55]	.036
After	4.03 (1.18)	4.36 (1.02)	381	2.94	0.31 [0.10, 0.51]	.003
None	4.63 (1.11)	4.64 (1.05)	441	0.11	0.01 [-0.18, 0.20]	.909

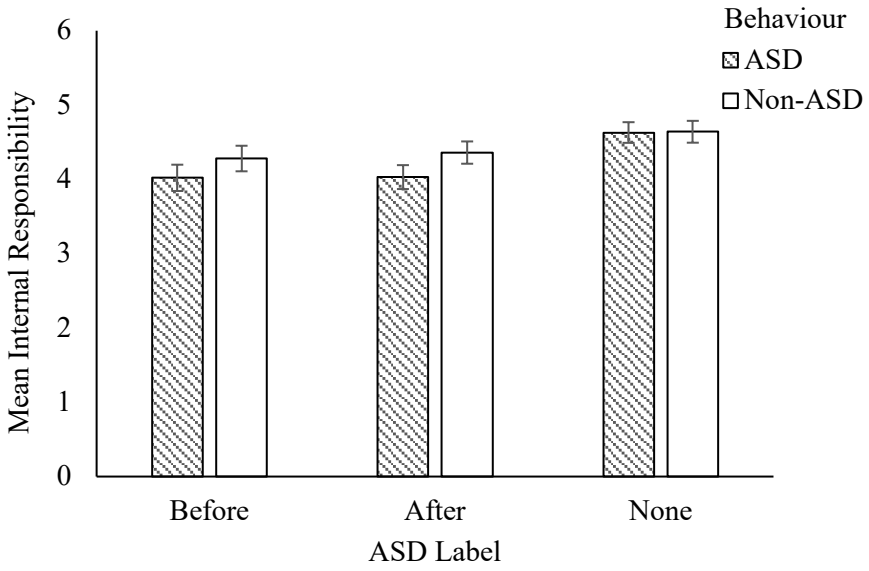


Figure 21. Column graph for the comparison of the mean impression of internal responsibility (with error bars that show 95% confidence intervals) between ASD and non-ASD behaviours at each level of the ASD label condition.

Effect of Behaviour on Verdict through Suspect Evaluations

Inter-relationship between evaluations. To assess the relationship between each of the various dependent variables, and those predicted to mediate the relationship between behaviour and verdict, correlation between each variable was examined (see Table 67). There were moderate to high inter-correlation between each of the measures in the predicted directions: that is, more negative impressions of behavioural appropriateness were associated

with greater feelings of negative affect and impressions of suspect suspiciousness, diminished credibility and greater likelihood of guilt. The only non-significant relationships were between external responsibility and likely guilt, external responsibility and memory report, internal responsibility and negative affect, and internal responsibility and behavioural appropriateness. The latter was surprising given that it was expected that more negative impressions of behavioural appropriateness may lead to the suspect being interpreted as more blameworthy and internally responsible for the crime. However, this analysis was carried out across all three levels of the ASD labelling condition (i.e., where two out of those three levels involved labelling and explaining the ASD behaviour).

The correlations between internal responsibility and behavioural appropriateness for each level of the ASD label condition showed a small significant negative relationship in the no ASD label condition, $r(441) = -.153$, 95% CI [-.243, -.061], $p = .001$, but nonsignificant relations for the ASD label provided before, $r(315) = .056$, 95% CI [-.054, .165], $p = .321$, and after the interview conditions, $r(381) = .090$, 95% CI [-.010, .189], $p = .078$. These findings suggest that the ASD label may have reduced the relationship between impressions of behavioural appropriateness and how blameworthy the suspect was for his involvement.

All correlations involving external responsibility, even if significant, were quite small. However, it was not expected that there would be strong correlations between attributions of criminal responsibility that were external to the suspect (e.g., the suspect's living situation and coercion from others) and those other measures reflecting the character of the suspect (e.g., his credibility, suspiciousness, etc.). In contrast, internal responsibility places the focus on the individual, and thus it was expected that internal ratings would correlate more strongly with those other measures regarding the suspect's character, as they did. Internal and external responsibility were left out of the following mediation models because only those who

provided a guilty verdict as their final decision or at the end of the interview had the option to respond to those measures.

Table 67

Correlation [and 95% confidence intervals] between each measure

	Measure						
Measure	1	2	3	4	5	6	7
1. Credibility	-						
2. Suspiciousness	-.764 [-.779, -.748]***	-					
3. Negative affect	-.268 [-.302, -.233]**	.369 [.336, .401]**	-				
4. Memory report	.757 [.741, .772]***	-.596 [-.619, -.571]***	-.247 [-.282, -.212]***	-			
5. Likely Guilt	-.813 [-.825, -.800]***	.749 [.732, .765]***	.257 [.222, .291]***	-.564 [-.589, -.538]***	-		
6. Behaviour appropriateness	.446 [.416, .475]***	-.553 [-.578, -.527]***	-.190 [-.226, -.154]***	.409 [.378, .440]***	-.371 [-.403, -.338]***	-	
7. Internal responsibility	-.399 [-.447, -.349]***	.290 [.236, .324]***	.036 [-.022, .094]	-.144 [-.200, -.087]***	.494 [.449, .537]***	-.032 [-.090, .026]	-
8. External responsibility	.078 [.020, .135]**	.077 [.019, .134]**	.160 [.103, .216]***	-.022 [-.080, .036]	.005 [-.053, .063]	-.067 [-.125, -.009]*	-.129 [-.186, -.072]**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Mediation model at each level of ASD label. To examine whether ASD labelling influenced the pathways through which behaviour affected verdict, the PROCESS tool (Hayes, 2018) was used to analyse the indirect mediation pathways separately for each ASD label condition. Verdict at time point three was entered as the outcome variable, behaviour condition as the predictor variable, and behavioural appropriateness, negative affect, suspiciousness and credibility as four separate serial mediators entered in that order. Each of those mediator variables (which included the average of all ratings across all three time points of the interview) were appropriately coded so that higher scores indicated more negative impressions. The indirect effects were subjected to a bias-corrected bootstrap analysis with 10,000 bootstrap samples and 95% confidence intervals. See Figures 22, 23 and 24 for only those pathways between the variables entered in the model that were significant for each ASD label condition, and Table 68 for the indirect effect behaviour had upon verdict through each pathway.

First, the direct effects for each level of ASD label indicated similar patterns within each condition. Specifically, as in the models within Studies 1 and 2b, ASD behaviour had a significant negative effect upon impressions of behavioural appropriateness, which was associated with increased feelings of negative affect which in turn related to increased impressions of suspiciousness, decreased impressions of credibility and a greater likelihood the suspect was found guilty. The indirect effect of behaviour on verdict through each of those variables entered together was small but significant for all label conditions.

The other indirect pathways showed that the way in which ASD behaviour influenced verdict differed depending on the ASD label provided to participants. When there was no ASD label received, there was a much stronger effect of behaviour upon verdict through impressions of behavioural inappropriateness compared to when the ASD label was received before and after the interview. Given this large effect, the pathways through behavioural

inappropriateness and suspiciousness, and behavioural inappropriateness and credibility, also indicated much larger effects for the no ASD label condition. As highlighted within the correlation analysis, it was likely the no ASD label condition had a stronger effect through behavioural inappropriateness as there was no qualifying information received within that condition to explain why those ASD behaviours should not inform decision making.

The pathway involving ASD behaviour leading to more positive impressions of the suspect's credibility and to a lower likelihood of guilt was present as it was in Studies 1 and 2b. For the labelling groups, this may reflect an overcompensation in ratings of credibility for the ASD behaviour group when made aware that those behaviours were displayed due to an ASD. However, that does not explain why the effect of behaviour through this pathway is of a similar strength for those who did not receive a label. As suggested within the Study 2b, participants may have felt some level of sympathy for the suspect due to their perceiving those ASD behaviours as indicative of nervousness or anxiety due to the interview setting.

Interestingly, when the ASD label was provided after the interview, there were larger indirect effects of behaviour upon verdict via suspiciousness and credibility than when the label was provided before the interview or when no label was provided. It is possible that, in the absence of an awareness of the ASD diagnosis during the interview, there was a greater emphasis placed on the inappropriate ASD behaviour of the suspect informing guilt for this group compared to those who received the label before the interview. Potentially then, once the ASD label was received and there was an explanation for those ASD behaviours, participants may have overcompensated by relying more upon impressions of suspiciousness and credibility in forming a verdict rather than behavioural inappropriateness. This explanation may also be reflected in the larger effect of behavioural inappropriateness for those who received no label compared to those who received the label after the interview. Those who received no label continued to rely upon the inappropriateness of the ASD

behaviour when forming a verdict because they did not receive information to explain those behaviours.

For each ASD label condition, similarly to the results found in Study 2b, there remained a significant direct effect of behaviour upon verdict after controlling for all other variables. This was indicative of there being other unmeasured variables contributing to an inverse relationship between ASD behaviour and guilty verdicts not explained within the model.

Table 68

Unstandardised regression coefficients [and 95% confidence intervals] for each of the pathway effects of behaviour on the final verdict for the different levels of ASD label

	Label		
Pathway	Before	After	None
IN	0.14 [-0.15, 0.41]	-0.18 [-0.45, 0.08]	0.54 [0.22, 0.89]*
IN - NA	-0.01 [-0.05, 0.03]	0.00 [-0.05, 0.05]	-0.09 [-0.16, -0.03]*
IN - SU	0.33 [0.18, 0.50]*	0.24 [0.10, 0.39]*	0.80 [0.55, 1.07]*
IN -NC	0.19 [0.10, 0.31]*	0.18 [0.06, 0.32]*	0.42 [0.28, 0.60]*
IN - NA - SU	0.05 [0.02, 0.09]*	0.04 [0.02, 0.07]*	0.08 [0.05, 0.13]*
IN - NA - NC	-0.02 [-0.04, -0.00]*	-0.01 [-0.04, 0.01]	-0.00 [-0.03, 0.03]
IN - SU - NC	0.54 [0.37, 0.74]*	0.54 [0.39, 0.73]*	0.80 [0.57, 1.07]*
IN - NA - SU - NC	0.08 [0.04, 0.13]*	0.09 [0.05, 0.14]*	0.08 [0.05, 0.13]*
NA	0.01 [-0.02, 0.06]	-0.00 [-0.04, 0.03]	0.07 [0.02, 0.16]*
NA - SU	-0.04 [-0.09, -0.00]*	-0.02 [-0.06, 0.00]	-0.06 [-0.12, -0.02]*
NA - NC	0.01 [0.00, 0.04]*	0.01 [-0.00, 0.03]	0.00 [-0.02, 0.03]
NA - SU - NC	-0.06 [-0.14, 0.00]	-0.04 [-0.11, 0.01]	-0.06 [-0.12, -0.02]*
SU	-0.08 [-0.21, 0.03]	0.21 [0.09, 0.39]*	0.10 [-0.03, 0.26]
SU - NC	-0.13 [-0.33, 0.06]	0.49 [0.31, 0.69]*	0.10 [-0.03, 0.26]
NC	-0.58 [-0.80, -0.40]*	-0.81 [-1.08, -0.58]*	-0.68 [-0.93, -0.47]*
Total effect	-0.21 [-0.49, 0.06]	0.07 [-0.20, 0.34]	0.40 [0.14, 0.66]*
Total indirect effect	0.43 [0.01, 0.84]*	0.73 [0.34, 1.12]*	2.11 [1.61, 2.63]*
Direct effect	-0.89 [-1.36, -0.42]*	-0.64 [-1.08, -0.58]*	-1.33 [-1.82, -0.83]*

Note. 'IN' is inappropriateness; 'NA' is negative affect; 'SU' is suspiciousness; 'NC' is non-credibility

* is a significant effect, as the 95% bootstrap confidence interval does not pass through zero

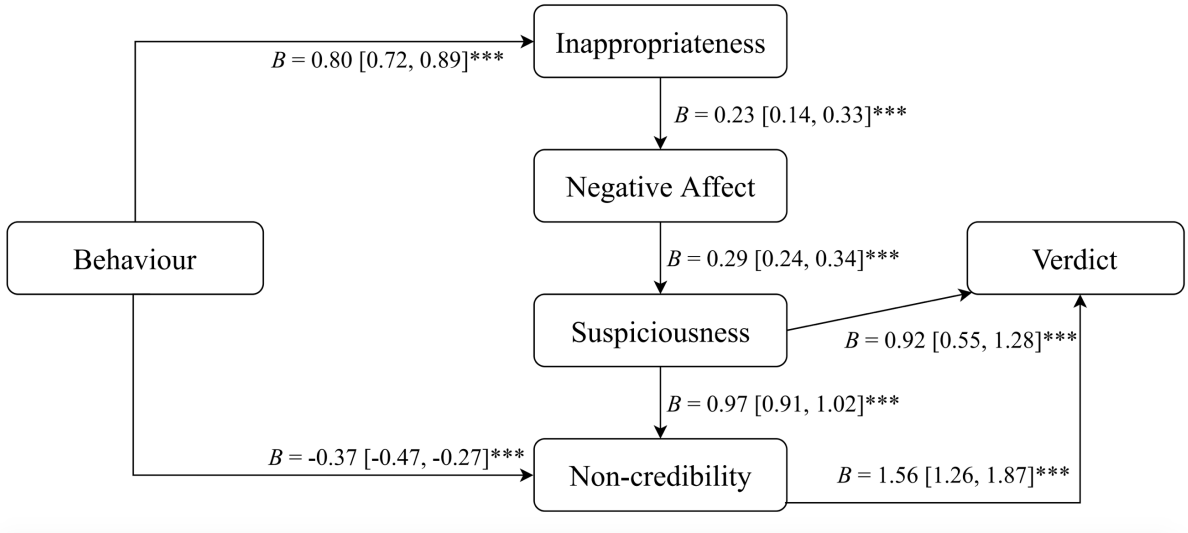


Figure 22. Model for the ASD label before condition, with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * p <.05, ** p <.01, *** p <.001

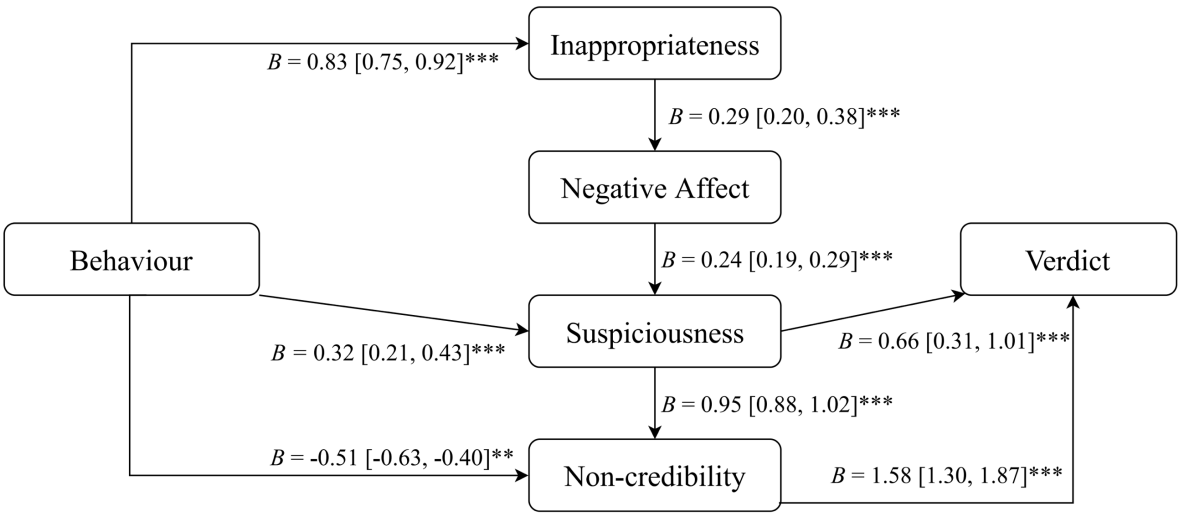


Figure 23. Model for the ASD label after condition, with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * p <.05, ** p <.01, *** p <.001

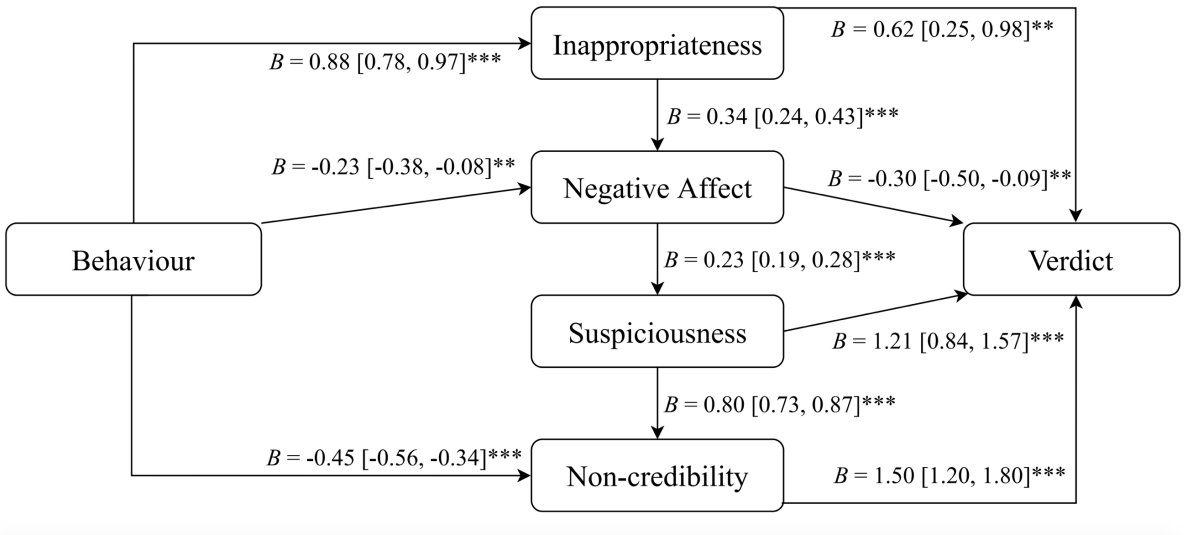


Figure 24. Model for the no ASD label condition, with significant unstandardised direct effects [and 95% confidence intervals] between each variable entered into the pathway.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

As demonstrated by Studies 1 and 2b, displays of ASD behaviour led to more unfavourable impressions of the suspect and more guilty verdicts, even when there was decisive incriminating and exonerating evidence presented. Study 3 extended these findings by revealing that labelling the suspect with a diagnosis of ASD, and providing basic information about ASD, offered some protection against this negative effect of behaviour. The present study built upon previous research by providing evidence that labelling not only produced more favourable outcomes when both ASD and non-ASD behaviours were labelled, but also removed the biasing effect of ASD behaviour. That is, when participants were told either before or after the interview that the suspect had an ASD diagnosis, there was no difference in the number of guilty verdicts or impressions of credibility and guilt when ASD behaviours were present or absent.

Effect of Labelling on Behavioural Expectations

The label and the small amount of accompanying ASD information provided an explanation as to why the expectancy violating ASD behaviours were displayed, suggesting they were beyond the control of the suspect and reducing their negative impact. As reflected by the ratings of behavioural appropriateness, those who viewed ASD behaviour reported that the suspect violated expectations of appropriate behaviour more than those who viewed the non-ASD suspect. This effect was similar across all levels of the label condition, but there were differences in how this violation informed decision making. The mediation model showed that there were strong significant pathways from ASD behaviour through those appropriateness ratings to verdict, but only for those who did not receive a label. Whilst those who received a label interpreted those ASD behaviours as more inappropriate than non-ASD behaviours, those impressions of appropriateness did not inform verdict decision making. This suggested that the provision of a label led to participants discounting those behavioural violations as indicative of guilt. This was in line with predictions from attribution theory, that the attributions of guilt associated with the presence of ASD behaviours would be discounted when an alternative explanation was available (Kelley, 1973).

It was possible that receiving an ASD label may have primed expectations regarding the probability that inappropriate behaviour would be displayed by the suspect, and that this might then reduce the extent of violated expectations for the labelled groups. However, the group difference in appropriateness ratings did not reflect this. Instead, those who received the label after the interview interpreted the suspect as less behaviourally appropriate than those who received the label before or no label (with no difference between the latter two conditions). Due to the label manipulation, the way in which these violations were measured may have confounded ratings of violated expectations with ratings of behavioural severity. The measure asked participants to rate the appropriateness of the level of eye contact,

emotional expression, vocal quality and repetitive movements displayed by the suspect in regard to how they would "expect an individual to act during an interview". Participants who were alerted to the potential presence of those behaviours through labelling may have had a greater focus on those behaviours and thus rated the inappropriate behavioural display more severely. Alternatively, as previously outlined, those who received a label may have expected behavioural inappropriateness and provided more appropriate ratings (e.g., poorer eye contact was described as associated with ASD and thus in line with how an ASD individual may be expected to act during interviewing). Further research should disentangle these behavioural violation ratings by asking for expectations of the level of behaviour that should be displayed by the suspect, as well as severity ratings of the behaviours that were displayed by the suspect. These could then be compared to analyse how labelling may prime expectations of behaviour differently to when there is no label, and to then assess how those expectations relate to interpretations of behaviour.

Further support for attribution theory predictions came from the effect of labelling upon impressions of criminal responsibility. For those who decided the suspect was guilty, the label increased situational attributions, and reduced dispositional attributions, when inferring causation for the suspect's involvement in the crime. Thus, the label gave participants reason to believe that the suspect's involvement was beyond his control, which reduced his personal blameworthiness for the criminal activity. This finding was also in line with the hypothesis and those previous studies that found reduced blameworthiness for the crime when participants were provided with a label compared to when they were not (Berryessa et al., 2015; Maras, Marshall, & Sands, 2019).

Effect of Labelling when Mismatched with Behaviour

The effect of labelling led to more favourable impressions of the suspect regardless of whether he displayed ASD or non-ASD behaviour. However, a reduction in unfavourable

impressions of credibility, likely guilt and criminal responsibility, and the number of guilty verdicts, occurred to a greater degree for those who viewed ASD compared to non-ASD behaviour. This pattern of a greater reduction in unfavourable impressions for the ASD group may be explained by either: (1) non-ASD behaviour not matching the card's described explanation of the behavioural manifestation of the disorder as well as ASD behaviour, or (2) interpretations of a greater severity of the disorder when ASD behaviours were displayed.

Based on previous research, it may be suggested that when a label does not match the behaviour of the individual who was labelled with the disorder, there may be no difference in how that individual is perceived compared to when there is no label provided (Crane et al., 2018). It is possible that the discounting principle is not applied when those behaviours are not representative of the alternative explanation (i.e., the non-ASD behaviour does not appear to be representative of an ASD diagnosis). However, the present study did show that there were more favourable impressions of the non-ASD behaviour when labelling occurred, suggesting the use of the discounting principle transpired in some capacity even if those behaviours did not match the disorder description.

The greater reduction in unfavourable impressions of the ASD behaviour may then be better explained by the increased necessity for those behaviours to be discounted due to their severity. Because impressions of the non-ASD behaviour were already more favourable than the ASD behaviour without labelling, there may have been only so much room for impressions to become more favourable as a result of labelling. ASD behaviour was more severe and interpreted more negatively and, thus, a greater reduction in those unfavourable impressions may have been possible. Alternatively, for impressions of internal criminal responsibility, there was no difference in impressions between the behaviour conditions without labelling. When labelling occurred, however, there was a greater reduction in impressions of internal responsibility for ASD compared to non-ASD behaviour. Thus, these

results suggested a more visually severe representation of the diagnosis led to a greater reduction in attributions of criminal responsibility.

Further research is necessary to ascertain whether a mismatch in behaviours reduces the positive effect of labelling compared to matched behaviour, or whether there is a floor/ceiling effect in terms of how favourably labelling can shape impressions. The description of the diagnosis on the 'Autism Information Card' was general and based on the DSM-5 criteria, but this description matched most of those ASD behaviours displayed by the suspect. Further research could manipulate the information presented on the card to describe more or fewer ASD behaviours that were displayed by the suspect and assess whether that causes differences in the impact of the label in terms of reducing negative impressions. This is an important issue to consider in the real-life use of such alert cards. It would inform whether the card design should include more individual-specific information or whether a general description of the disorder would be effective. It would be unlikely that more specific rather than general information would lead to a reduction in the positive effect of labelling, but it is possible that the opposite may occur.

Integration of Evidence and Order Effects for Label Presentation

One of the features of the present study was that it allowed further examination of evidence integration. There were multiple pieces of evidence available on which to base decision making and, therefore, to bias the processing of other evidence. Specifically, the study examined how a diagnostic label may be integrated with other expert and witness evidence, as well as behavioural evidence within a suspect interview. With the manipulation of the timing of ASD label presentation, the present study also investigated whether there was a difference in the biasing effect of the diagnostic label depending on the time point at which this label was presented (either before or after the interview).

There was no significant interaction between the effects of behaviour and evidence on verdict or impressions of the suspect. This result suggested that, as in Study 2b, the effect of ASD behaviour upon negative evaluations of the suspect was similar across each evidence condition, and that there was no difference detected in the way that evidence strength or valence biased the processing of behaviour. For Study 3 there was also no significant interaction between the effects of evidence and ASD label on verdict or impressions formed regarding the suspect over the course of the interview. The effect of labelling on impressions of the suspect was similar for incriminating, exonerating and neutral evidence. As it stands it appears that, regardless of evidence valence, participants evaluated the fingerprint/witness evidence and the ASD label separately and integrated them in a similar manner when informing impressions of the suspect.

There were, however, differences in the integration of evidence when it came to the timing of the ASD label presentation. Regardless of whether the label was presented before or after the interview, the negative effect of ASD behaviour on verdict and impressions of the suspect's credibility and likely guilt was removed. There was only a small effect of behaviour on evaluations of credibility and guilt and thus the order of the label was irrelevant when it came to removing those effects. However, for evaluations of suspiciousness (upon which there was a large behaviour effect), there was a greater reduction in the behaviour effect when the label was provided before the interview compared to after. Additionally, by the end of the interview and across both behaviour conditions, impressions of the suspect were poorer and there were more guilty verdicts reported by those who received the label after the interview compared to those who received the label before the interview. When the label was received after the interview it had a retroactive bias upon how the suspect behaviour was evaluated. This was demonstrated by the large shift in more positive evaluations of the suspect from the first two time points to the final time point when this label was revealed

(compared to those who did not receive a label). Although this retroactive bias occurred, it was less powerful in reducing negative suspect evaluations compared to the bias of the label when presented before the interview. These findings provided partial support for the context hypothesis and the findings of Charman et al. (2015) who found a strong contextual bias of evidence presented initially on the evaluation of subsequent evidence but no effect for evidence provided later upon a retrospective evaluation of earlier evidence. The differential accessibility hypothesis was not supported as there was no evidence for a recency effect. If the latter were to be true, it may have been expected that the label received after the interview would have a more positive impact on evaluations of the suspect than the label before.

A framework which may help to better understand evidence integration, and the Study 3 results, is the coherence-based reasoning model (Holyoak & Simon, 1999). This model explains the process of decision making (e.g., a suspect's guilt) when there are multiple pieces of evidence to integrate that may be conflicting in valence or differ in strength or ambiguity. The model purports that these different pieces of evidence may be positively or negatively related to each other, and that the process of decision-making aims to maximise coherence among all elements of evidence (Charman, Douglass, & Mook, 2019). The model assumes that coherence is achieved through a bidirectional process involving evidence informing the development of decision-makers' beliefs regarding a suspect's guilt, with those beliefs in turn informing the processing of other evidence (whether retrospectively or prospectively). This bidirectional approach and opportunity for evidence to become continually biased has been demonstrated in a number of studies, as well as in my Study 3 (Holyoak & Simon, 1999). For example, the ASD label provided after the interview led to a re-evaluation of participant beliefs of the suspect's guilt that had developed from the earlier interview; and beliefs of guilt developed from the incriminating evidence were shifted more positively in line with the label information which was more exonerating in nature.

The model then argues that, because evidence informs beliefs of guilt, evidence that aligns with those beliefs is perceived as stronger than opposing evidence (Ask, Rebelius, & Granhag, 2008). The present study also provided support for this notion, with those who viewed exonerating evidence reporting greater verdict confidence when they received an ASD label either before or after the interview compared to no label (as that label was also more exonerating in nature and aligned with beliefs formed from exonerating evidence). Furthermore, when provided with an ASD label before or after the interview, those who viewed exonerating evidence reported greater verdict confidence than those who received incriminating evidence.

The coherence-based reasoning model, however, does not delineate how the order of one evidence presentation over another may bias the integration of all evidence. It may be construed from the model that, given beliefs formed regarding one piece of evidence feed into the processing of other evidence, these beliefs may have a stronger effect upon the processing of other evidence when formed earlier compared to later. That is, when an ASD label was provided before the interview, beliefs of the suspect that were formed based on that ASD information may feed into how the suspect interview is subsequently processed to a greater degree than when the label is provided after the suspect interview has already been processed.

Conclusions

Overall, Study 3 provided promising conclusions regarding the ability of an ASD label and small amount of associated information about the disorder to reduce any bias based on the display of ASD behaviour. The findings provided support for the use of an 'Autism Alert Card' style of presenting information regarding the disorder. This was the first study to examine the effect of labelling ASD behaviours that were displayed visually, and when controlling for the information relayed by the individual displaying those ASD behaviours.

Additionally, this was the first study to look at how the timing of a diagnostic label may affect how an individual is perceived. The timing of the label demonstrated that a greater reduction of the behaviour effect, and overall more favourable evaluations of the suspect, occurred when the label was presented before the interview compared to after. The study suggests those who are appropriately labelled as ASD may be treated more fairly than those who do not have a diagnosis of ASD and are not labelled.

These outcomes highlighted an important consideration when extrapolating the results of the present study – the high potential for demand effects to have occurred. The overall more favourable impressions when participants were provided with a diagnostic label than when not may indicate an overcompensation in evaluations of the suspect based on the disorder. Being prompted in a quite obvious manner as to the presence of an ASD diagnosis and provided with information regarding that diagnosis may also have primed participants to feel the need to respond more desirably. I tried to limit such effects by presenting only a small amount of information on the card, with this information objective and clinical in nature. This contrasted with those previous studies that used longer descriptions of the disorder that went beyond those provided by the DSM-5 criteria (Berryessa et al., 2015; Maras, Marshall, & Sands, 2019). To gauge whether more desirable responding occurred, further research could manipulate stigmatisation toward ASD individuals before the task began. Brewer et al. (2017) achieved a successful manipulation of more negative attitudes toward ASD individuals through presenting participants with media reports that connected ASD with criminal activity. Such a manipulation would also enable a better understanding of how labelling may impact impression formation for those who hold a greater stigma toward ASD individuals. For example, one study found that some individuals held preconceived negative attitudes toward ASD, and that when they were presented with another individual who was labelled with a diagnosis of ASD they formed poorer impressions of that individual

compared to when there was no label provided (Morrison, DeBrabander, Faso, & Sasson, 2019). However, those impressions were in regard to whether participants wanted to spend time with, hold a conversation with, or live near the individual who was labelled as ASD. Thus, it is possible that impressions formed regarding an ASD labelled individual by those with negative attitudes toward ASD may differ within a criminal context when the task is to evaluate impressions of credibility and guilt.

Another issue regarding the external validity of the present results may have been an overemphasis of the relevance of the label in informing evaluations of the suspect. Participants only received four pieces of evidence to integrate within their decision making; the fingerprint and witness evidence, the suspect interview, and the 'Autism Information Card'. Within an authentic police investigation there may be many more items to consider, the investigative officer may be under greater pressure, and the availability of information regarding the diagnosis may not appear to be as relevant as it was within the present study. Further research could include a cognitive load manipulation to assess how labelling may be enacted when there are reduced cognitive resources available for processing. Alternatively, and obviously, the most ecologically valid method would be to assess the how real-life police officers evaluate a suspect when provided with an ASD label.

CHAPTER 5

General Discussion

The series of studies presented within this thesis investigated how displays of behaviour characteristic of a diagnosis of autism spectrum disorder (ASD) influenced impression formation within the context of a mock-police interview with a suspect. Case-study observations of police-citizen and courtroom interactions have demonstrated that the 'unusual' behaviour of ASD individuals may often progressively antagonise the officer or the judge with whom they are interacting (cf. Brewer & Young, 2015). These real-life observations, as well as past social, cognitive and policing research, provided a basis to experimentally examine whether specific ASD behaviours led to poorer interaction outcomes. The evaluations of ASD behaviour were examined within different contexts that may have important implications for the interpretation of those behaviours. Specifically, I examined how the effects of ASD behaviours varied with the strength of evidence for or against the suspect and knowledge of the suspect's diagnosis of ASD. The studies within this thesis demonstrated that a suspect displaying ASD behaviour was more likely to be evaluated negatively during interviewing. Negative evaluations of the suspect based on the display of ASD behaviour occurred even when there was other ambiguous or decisive evidence available. However, this judgmental bias was reduced when those behaviours were explained by the disclosure of an ASD diagnosis. Within this chapter I will integrate the findings from the three main studies to highlight their practical and theoretical implications, consider the limitations of the research and pinpoint future research directions.

ASD Behaviour and Violation of Behavioural Expectations

Across all studies displays of ASD behaviour by a suspect led to an increased likelihood of negative evaluations by observers (i.e., greater suspicion, low credibility, more likely guilty). Moreover, consistent with predictions derived from expectancy violations

theory (Burgoon, 1993), these negative evaluations were shown to be a function of those behaviours violating expectations of appropriate behaviour. Exposure to more instances of 'violating' ASD behaviours over the 22 or 15-minute interview periods did not lead to increasingly more negative evaluations. The negative behaviour effect emerged early in the interview and remained fairly consistent throughout. This finding opposed the prediction that, as the opportunity for expectations to be violated increased with time, evaluations would become more negative. This suggested that violation strength, rather than the number of violations, determined negative outcomes. Within Study 1 there was a stronger effect of behaviour upon negative evaluations at the first time point compared to the subsequent four time points. Although this may suggest that increased exposure to ASD behaviour moderated any negative effects, ASD behaviour continued to have a negative effect after the first time point.

The measurement of participants' violated behavioural expectations was assessed through a rating of the suspect's behavioural appropriateness (including eye contact, verbal quality, emotional expression and body movement). The appropriateness rating was obtained at the end of the interview after all other ratings of credibility, suspiciousness and likely guilt were made. The appropriateness rating was placed at the end of the interview to ensure that participants were not specifically primed to focus on behavioural characteristics of the suspect throughout the interview. However, it may be argued that appropriateness ratings were then shaped by participant judgments of the suspect's credibility, suspiciousness and guilt that were formed before this rating was made. The results of Study 3 demonstrated that, with labelling, there was a behaviour effect upon impressions of behavioural appropriateness but no behaviour effect upon impressions of the suspect's credibility and guilt. This result may suggest that participants did separate their rating of behavioural appropriateness from other judgements of the suspect. However, Studies 2b and 3 also demonstrated that, for both

ASD and non-ASD behaviour, those who viewed incriminating evidence rated the suspect as less behaviourally appropriate than those who viewed exonerating and neutral evidence. Given that these differences in behavioural appropriateness ratings were found between evidence conditions even when there was no difference in behaviour, it was possible that other evaluations of the suspect that were formed from the evidence fed into behavioural appropriateness ratings. To examine this potential limitation, further research could place the measurement of behavioural appropriateness before those other impression ratings are made or randomise the presentation order across participants to examine whether any differences occur.

When a label of ASD was provided to participants, they still recognised those behaviours as appearing unusual but, given they expected the ASD behaviour to occur based on the information they had received, they did not interpret the violations so negatively or as indicating likely guilt. This is an important point when considering future education or training of police for interacting with ASD individuals. It may be useful to target the underlying expectations that officers hold regarding interviewee behaviour, with the aim of reframing those expectations in line with how an ASD individual is likely to behave. Study 3 demonstrated that providing only a small amount of information about ASD behaviours on a card may be able to achieve this.

The results of Study 3 showed that labelling completely removed the negative effect of behaviour upon verdict and evaluations of credibility and likely guilt, and provided no indication that interpretations became more negative with diagnosis disclosure. Although labelling did not completely remove the negative effect of behaviour upon evaluations of suspiciousness, it did reduce the effect compared to when there was no label provided. Given the concern of ASD individuals that disclosing their diagnosis might lead to greater discrimination, these results provide a promising indication that the opposite may occur

(Crane et al., 2016). However, as outlined within the Study 3 discussion section, caution must be taken when applying these results to a real-life setting. The vulnerability for demand effects and an increased relevance of the label for decision making within the Study 3 methodology should be controlled for within future research.

ASD Labelling and Impressions of Criminal Responsibility

In addition to priming participants to expect those more 'unexpected' behavioural displays and to discount the ASD behaviour as indicative of guilt, the ASD label led to differences in impressions of criminal responsibility. As well as securing an explanation for the presence of the behaviours, participants were interpreting the ASD information presented as indicating that those behaviours were beyond the control of the suspect. This was demonstrated by those who received a label indicating that, even if the suspect was guilty, he was less personally responsible for his criminal involvement.

Opinion about whether an ASD diagnosis renders individuals less criminally responsible is divided. It has been suggested that there is a tendency within courts to claim that the culpability of an ASD or Asperger's individual is not on par with that of a typically developed individual (Freckleton & List, 2009). Determining whether ASD individuals are mentally competent with respect to understanding or controlling their involvement in criminal activity imposes great difficulties given the broad variation in the manifestation of the disorder between individuals. ASD is characterised by a core deficit in Theory of Mind (ToM), which involves the inability of individuals to take the perspective and attribute the mental state of others including their emotions, beliefs and intentions (Baron-Cohen, Leslie, & Frith, 1985). These deficits may underpin the inability of an ASD individual to interact appropriately and adaptively during social contact. Importantly then, ToM deficits may lead to an inability for an ASD individual to recognise their action as criminal or to consciously control their action (Brewer & Young, 2015).

Within the labelling study reported by Berryessa et al. (2015), information regarding the ASD defendant was provided through a psychiatrist's clinical report that explained why the behaviour may have been out of the defendant's control. This explanation significantly reduced observers' impressions of the defendant's criminal responsibility. In Study 3 of this thesis, reductions in impressions of responsibility were produced simply by providing an 'Autism Information Card'. The information within that card did not highlight any deficits that were specific to the suspect; it simply provided an overview of potential difficulties that may be beyond the control of an ASD individual. The suggestion on the card that ASD individuals "may be over compliant" might have been the factor that implied the potential for an unknowing or uncontrollable involvement in crime on the part of the suspect. Thus, even though there was no point during the interview where the suspect appeared compliant, participants may have construed this section of the information as indicating that the suspect may have been coerced into criminal involvement.

Further research is important in understanding specifically how observers interpret the criminal responsibility of ASD adults, and how observers' prior beliefs regarding ASD and criminality may shape interpretations of responsibility and subsequent decision making. For example, if an individual has been exposed to past media reporting of criminal cases where ASD has been linked with conscious involvement in crime, or vice-versa, this may influence how that individual evaluates the criminal responsibility of other ASD individuals (Freckleton & List, 2009). Interpretations of an individual's ability to recognise their wrongful action may have important implications for the action police take during interviewing and potential arrest, or for a judge or juror when deciding on a verdict or sentence during trial (Berryessa, 2014). Manipulating the information relayed within the card may allow for a more in depth look at which of the described features of the diagnosis have a greater bearing upon informing impressions of criminal responsibility. Measuring

participants' knowledge of ASD, as well as their beliefs regarding the ability for ASD individuals to knowingly and controllably become involved in criminal activity, would also allow for a better understanding regarding how impressions of criminal responsibility are formed.

Additionally, research suggests that the severity of the crime that is being investigated may influence impressions of criminal responsibility that are formed regarding the perpetrator (Robbennolt, 2000). Depending on the judgments to be made, greater attributions of criminal responsibility generally occur for crimes that lead to more severe negative outcomes. Within the present study the severity of the crime may be considered moderate, involving home robberies and no injury to others. Further research should examine the way in which labelling may have a weaker effect on reducing impressions of responsibility when overall attributions of criminal responsibility are greater (e.g., where more harm has been caused in the case of a crime involving sexual abuse or murder).

The Influence of Evidence Strength on the Effect of Behaviour

The effects of ASD behaviour were present when evidence was ambiguous and neutral in nature. Furthermore, both Studies 2b and 3 demonstrated that when decisive incriminating and exonerating evidence was presented, heuristic processing of behaviour biased evaluations similarly to when ambiguous neutral evidence was presented. This led to those who viewed ASD behaviour evaluating the suspect as less credible, more suspicious, and leading to a higher likelihood that they would decide the suspect was guilty of involvement in the crime than those who viewed non-ASD behaviour. This highlights the concerning potential that an innocent suspect who displays ASD behaviour, and yet has strong exonerating evidence in their support, may be unjustly evaluated due to judgmental bias. Given both valences of evidence were quite strongly manipulated, with potential ceiling effects present for incriminating evidence in particular, it is suggested that further research

look at the effects of these different valences of evidence when they are weaker in strength. This would allow greater confidence in understanding the way in which behaviour and evidence may interact for decision making.

Implications of the Negative Effect of ASD Behaviour

It is important to consider the weight that ASD behaviour had upon impression formation and decision making within the present set of studies, and what those evaluations may represent. What could be the broader implications of a guilty verdict or an impression of low suspect credibility formed within the context of these studies? Within the follow section I will discuss the size of the behaviour effect that was found within my studies, the potential outcomes that may arise from this behaviour effect, and the way in which further research can increase the validity of conclusions drawn from these results.

Across all studies, participants were approximately 17-27% more likely to decide the suspect was guilty of involvement in the crime by the end of the interview if they viewed the suspect display ASD behaviour compared to those who viewed the suspect display no ASD behaviour. Those significant differences in final verdict between behaviour conditions (which effect sizes indicated were statistically small) occurred when there was no label provided, no additional evidence, or when additional evidence was ambiguous in nature. Even when the evidence was decisively exonerating, as in Study 2b, participants were 12.7% more likely to enter a guilty verdict for ASD compared to non-ASD behaviours. Although the behaviour effect upon verdict produced only small differences, there were moderate to very strong effects of behaviour across all studies on impressions of the suspect. This demonstrated that participants held strong beliefs of likely guilt, low credibility and suspicion when they viewed the suspect display ASD behaviours compared to those who viewed non-ASD behaviours. It was possible that participants evaluated the ASD behaviours quite negatively, but when it came time to enter a final verdict, participants were less willing to make

conclusive decisions of guilt and thus only a small effect of behaviour on verdict was present. At this early stage of the investigative process (i.e., police interviewing) beliefs of likely guilt, credibility and suspiciousness may be just as important as any final conclusions of guilt in informing the course of the investigation and further action taken by police officers. It should be noted that, in a real-world context, police and individual jurors do not decide on a verdict, rather, they make decisions in terms of recommending prosecution. Therefore, one limitation of the present research is the measurement of verdict rather than prosecution recommendation. Nevertheless, police and jurors still hold impressions regarding a suspect's guilt during an investigation, with those impressions likely to inform decisions regarding recommended further action.

Research has demonstrated that beliefs of likely guilt formed early by police officers may be persistent throughout the investigation process and shape outcomes more negatively. For example, this influence may be manifested through a biased interpretation of other evidence or via beliefs of guilt leading to the use of a more interrogative line of questioning during suspect interviewing (Kassin, Goldstein, & Savitsky, 2003; Marksteiner, Ask, Reinhard, & Granhag, 2011). Kassin et al. (2003) demonstrated that manipulated beliefs of guilt led participants to question a suspect using more guilt-presumptive questions and interrogative techniques. This included questions that placed the suspect in an incriminating position (e.g., "how did you find the key that was hidden behind the VCR?" vs. "Do you know anything about the key that was hidden behind the VCR?"), and coercive techniques such as presenting false evidence and promising more lenient outcomes (Kassin et al., pp. 191). This line of questioning led observers who watched the interview to perceive the questioned suspect as responding defensively and to infer a greater likelihood of suspect guilt.

These outcomes associated with beliefs of guilt during interviewing may demonstrate the potential for even greater vulnerabilities for ASD adults during interviewing, particularly when they do not disclose their diagnosis. If, for example, ASD behaviours are interpreted as indicative of guilt (as in the present studies) within an interview, the use of the aforementioned coercive interviewing tactics may be more likely. Moreover, research has shown greater rates of compliance among ASD individuals during questioning (North, Russell, & Gudjonsson, 2008). This may cause an ASD individual to implicate themselves by agreeing unnecessarily during a leading or suggestive line of questioning, and even more so if there is a desire to remove themselves from an uncomfortable interviewing situation.

Together the findings of these studies suggest the potential for quite negative outcomes to occur following inferences of guilt based purely on ASD behaviour. To confirm these possibilities, further research is needed, ideally using an assessment of a live interaction between an interviewer and suspect. The differences in evaluations based on ASD behaviour demonstrated within the present studies may be even more pronounced within a real-life setting. Therefore, it is important to examine the behaviour effect, and the protective effect of labelling, within a live interaction. To do this, a similar methodology to the present set of studies could be used (i.e., using an actor to play the suspect to control for specific ASD behavioural displays), but with participants sitting with the suspect in the interview room and asking the questions themselves. This could build upon the present studies by allowing participants to select their line of questioning during the interview, and to examine how this may change depending on their perceptions of the suspect. This methodology would allow an examination of how evaluations of ASD behaviour displays may translate to evaluations made within an in-person context, as well as determining how labelling and other evidence influences these evaluations. Differences between an in-person interactive interview context and the methodology used in the present studies may involve increased involvement and

potential for greater arousal, back and forth exchanges and the mutual influence of behaviour (Burgoon, Buller, White, Afifi, & Buslig, 1999). Alternatively, the negative effect of ASD behaviour may be weaker within an in-person interview context where there is additional information to attend to. The orientation of the interview presented to participants in the present set of studies focused only on the suspect, who was prominent for the entire interview. In a real interview, however, there would be an opportunity for different focal points and periods of time when the interviewer's focus is averted from the interviewee and their behaviour (e.g., reading interview notes or evidence). Furthermore, when presented as evidence during trial, the interview orientation may influence juror decision making. For example, research regarding evaluations of coercion during police interviewing suggest that a camera perspective bias may influence impressions formed regarding the nature of a suspect's behaviour, with the visual presence of an interviewer in the frame of the recording leading to a reduction in dispositional attributions for behaviour and evaluations of guilt (Lassiter, Geers, Munhall, Handley, & Beers, 2001; Lassiter & Irvine, 1986). Thus, further research could also examine how ASD behaviour is perceived when the interviewer is visible.

The most obviously valid method for assessing the impact of ASD behaviour would be to use police officers as subjects. Past research suggests that there may not be much difference in the processing of heuristic cues and decision making between police and laypeople or students (Ask, Granhag, & Rebelius, 2011; Nitschke et al., 2019). However, given the absence of research, it is unclear how specific ASD behaviours, and the integration of evidence involving a label of ASD, may impact the decision making of police officers. During a real investigation police officers are likely to have much more investment in the outcomes of an interview compared to the investment of the university student and online samples during the task used within the present studies. With increased investment, it may be

possible that violations of behavioural expectations carry more weight and cause increased negative affect by frustrating the interviewing police officer, leading to more negative evaluations. Alternatively, police officers likely have increased experience of coming into contact with a wide range of individuals. Therefore, they may be accustomed to the unusual behaviour of citizens during interactions and interviewing, and thus they may be more easily able to separate and ignore that behaviour. Furthermore, individual differences between police officers in their experience, expertise and training may determine how they interpret ASD behaviour as well as the likelihood of their discounting that behaviour when it is qualified by an ASD label (Shanteau, 1992). For example, prior negative experiences with ASD offenders may lead officers to be less lenient when forming impressions of a labelled ASD individual compared to officers who have limited or positive prior experience or training with ASD. Thus, there are a number of factors that may contribute to differences in the way ASD behaviour is evaluated between the samples I used within this thesis and a sample of police officers, as well as individual differences across police officers. For greater generalisability, this line of research should be extended to incorporate interactions involving real officers.

Variability in the Display of ASD Behaviour

As outlined within the introduction, the display of ASD behaviour varies widely across individuals. The clinicians' evaluations of the suspect interview used in all three studies indicated that those behaviours displayed by the actor were in fact representative of an ASD diagnosis. However, there may be vast differences in the behavioural manifestation of the diagnosis for a number of ASD individuals and the behaviours displayed by the suspect within the present set of studies. Within the following section I will discuss how differences in ASD behaviour displays may have important implications regarding how the results of my thesis may be generalised, and how this may inform future research directions.

The manipulation of ASD behaviour involved a combination of gaze aversion, intense staring, monotone voice, odd verbal quality (volume, pace and irregular patterns of stress on words), flat emotional expression, and repetitive movement of body parts. Some ASD individuals may display only one of those behaviours, and their behavioural display may vary in intensity and frequency. With the method of the study including a combination of behaviours, it is unclear whether the presence of just one of those behaviours, or a combination, may have carried greater weight in informing negative evaluations. For example, participants may have interpreted gaze aversion and flat emotional expression as a sign of guilt, but disregarded repetitive body movements as indicative of guilt. Additionally, a greater intensity or frequency of those behaviours may have determined how the suspect was evaluated. Within Study 1, an overall higher intensity of ASD behaviour led to more negative evaluations than a lower intensity; however, I was not able to pinpoint how the intensity of particular individual behaviours may have affected evaluations.

There are also a number of other behaviours associated with ASD that may have a negative impact upon evaluations of a suspect during interviewing and yet were not examined within the present set of studies. For example, the language choice of individuals with ASD can often be interpreted as overly formal or unusual, there may be a tendency for long monologues, a lack of understanding non-literal language, an inability to infer the mental states of others, an obsessive interest in particular topics, and a potential lack of empathy (Baron-Cohen & Wheelwright, 2004; Brewer & Young, 2015; Freckleton & List, 2009). The verbal nature of these behaviours may feed into even greater impressions of guilt compared to those more visual behaviours represented in the present studies. For example, an ASD individual may relay lengthy monologue responses without awareness of an interviewer's frustration at the time taken.

Further research should be carried out to examine within a similar paradigm the effect that these other verbal behaviours commonly associated with an ASD diagnosis have on observer evaluations. Additionally, within further research, manipulation of suspect behaviour (where the script is controlled for) should isolate each behaviour (e.g., the suspect only displays gaze aversion, or only a long monologue), as well as the frequency and intensity of each of those behaviours, to gain a better understanding regarding the effect that particular ASD behaviours have upon evaluations of a suspect. Further to this, understanding the way those behaviours may interact with one another in their effect on evaluations may be achieved by manipulating the display of different combinations of behaviour (e.g., the suspect displays gaze aversion and flat emotional expression, or the suspect displays repetitive body movement and a lack of empathy). Understanding the effect of specific ASD behaviours (in isolation and in combination with other ASD behaviours) upon negative evaluations of an individual is important given variability in the behavioural manifestation of an ASD diagnosis across individuals. It would also further contribute to the education of decision makers within the criminal justice system (i.e., police officers, judges and jurors) regarding how these behaviours may influence their evaluations of an individual.

Of course, the most important consideration regarding these thesis results is whether the same evaluations of an actor who displays ASD behaviour would apply when ASD individuals are being interviewed. Do ASD individuals combine the display of different behaviours in the same way that the actor does? Is it possible that there is something else associated with an ASD diagnosis that is not able to be captured within the manipulated behaviour of an actor, and could this affect evaluations? There may be a range of other behaviours that ASD individuals display that violate expectations of appropriate behaviour and lead to potentially poorer outcomes. This is important to explore given the findings of Bond et al. (1992). They demonstrated that participant evaluations of deception did not

depend on only those behaviour cues that have been found to be commonly relied upon to detect deception (e.g., gaze aversion, repetitive body movement, irregular verbal quality), but rather any behaviour that violated expectations of appropriate behaviour and appeared 'unusual' led to impressions of deception (e.g., when targets raised their arms or tilted their head unusually).

To best examine how impressions of ASD behavioural manifestations may be interpreted, further research should examine impressions of suspect behaviour when the suspect is an individual with an ASD diagnosis. This research should sample a wide range of target stimuli (ASD and non-ASD adults) to be interviewed as mock-suspects in an attempt to represent the great variability in displays of ASD behaviour across individuals. Given the aim to capture the true behaviour of ASD adults, the methodology would no longer be able to control for the script across interviews. This was one of the main reasons for the use of an actor within the present set of studies, so that the confounding influence of verbal detail could be controlled for whilst only the behaviour was manipulated. Although it is possible that the sound could be removed from the interview, or the ASD targets could read from a standardised script, this would reduce the ability to examine those verbal behaviours associated with ASD (e.g., would not allow for a monologue or differences in the use of language to occur) and would lower the overall validity of impressions formed from a true interview in which both verbal and visual cues are available. Therefore, it is important that the number of details and accuracy of those details relayed by the targets are accounted for when analysing results. This further research would build upon the studies within my thesis and allow for a more precise understanding of how the behavioural manifestations of an ASD diagnosis may appear during interviewing, and how those behaviours are evaluated within a criminal context.

Conclusion

The ultimate goal of this research was to understand the ways in which ASD behaviour influenced decision making. Understanding the influence of ASD behaviour may be useful in informing interviewer training and guidelines for police officers when interacting with ASD individuals. A combination of outward displays of behaviour including gaze aversion, intense staring, monotone voice, abnormalities in vocal pitch; volume; and pace, flat emotional expression and repetitive fidgeting were associated with violated expectations and led to more negative evaluations of a suspect. These findings suggested that targeting underlying behavioural expectations may be most effective in reducing any potential negative bias against ASD individuals who end up as suspects in an investigation. Further research of these behaviour effects within live interpersonal interactions would speak to the generalisability of my findings. Additionally, further research should examine the way in which other verbal behavioural manifestations of the diagnosis influence suspect evaluations, and pinpoint differences in the effect of ASD behaviours when displayed individually and in combination with other ASD behaviours. This would allow for better understanding of the way different ASD-related behaviour may bias decision making. The behaviours manipulated within the present research had previously been found to link with impressions of deception and violated expectations. It is less clear, however, how extended monologues or use of formal language may influence impression formation. Nor is it clear how the impact of such behaviours would be moderated by labelling or the availability an 'Autism Information Card'. Most importantly, there may be characteristics of behaviour displayed by adults with an ASD diagnosis that are unable to be captured and portrayed by an actor instructed to display ASD behaviour. Therefore, further research should also examine how ASD adults are evaluated compared to typically developed adults when presented as a suspect, and how ASD labelling may influence evaluations of the ASD suspect.

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Appendix A

Task Instructions and Suspect Interview Script

Participants were told the following:

You are about to watch a police interview with a man who is suspected of being involved in several robberies that occurred in 2014/15. At different points during the interview you will be asked a number of questions about the suspect and your own perceptions.

Your task will be to determine as quickly and accurately as possible whether the suspect was involved in the crime, or innocent. You may indicate your decision at any time during the interview when you are given the option to make a decision.

Regardless of when you indicate your decision – i.e., during or at the end of the interview – you will receive an additional $5 if your decision is accurate. You can earn an additional $10 if you decision is both accurate and made quickly, based on the average time it has taken most participants to reach an accurate decision.

If you make your final decision of involvement before the end of the interview, you will still be required to watch the remaining interview and continue to answer any questions about the suspect.

During the interview, the suspect will verbalise a piece of information that will either clearly reveal their involvement or their innocence. This is randomised, so it may come at any time in the interview you are viewing.

It is assumed the interview has already begun with an introduction of the suspect's name and address. But we pick up here with the detective giving the suspect their rights. Only the suspect is able to be viewed within the shot. The voice of the police detective is of an older male.

Suspect Interview[9]:

Police Detective (PD): So we've received some information about a string of home robberies that have occurred over the last year, and we want to ask you some questions about it. But under our law we are not allowed to ask you these questions we want to ask without giving you your cautions and your rights. Do you understand that?

Suspect (S): Yes… are you charging me or?

Non-ASD: eye contact, appropriate expression

Low intensity ASD: monotone voice

High intensity ASD: finger tapping, frowning, blinking, monotone voice

PD: No. You're not under arrest

S: So what do you want to ask me?

Non-ASD: eye contact, appropriate expression

Low intensity ASD: rapid blinking

High intensity ASD: looking away, finger tapping, hands shaking, monotone voice

PD: Well I'll start by giving you your rights first up, just so that we're perfectly clear. The first one is that you do have the right to remain silent. That means that you do not have to say anything, answer any questions or give any statements unless you wish to do so. We are recording our conversation and that may later be used as evidence in court if we ever get that far. Do you understand that?

S: Yeah.

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[9] The first 12 introductory questions regarding the suspect's status of arrest and the issuing of cautions and rights were based upon the transcript of a real police interview conducted in Queensland, Australia ("Journalist's Facebook Arrest," 2011). Some of these 12 questions were the same as those in the online transcript, and some were adapted. These questions and statements were modelled on a real police interview to increase the validity of the suspect interview.
Journalist's Facebook arrest: Transcript of police interview (2011, May 18), The Age. Retrieved from https://www.theage.com.au/technology/journalists-facebook-arrest-transcript-of-police-interview-20110518-1esrr.html

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: eyes darting to the side, looking away from the interviewer when he speaks, looking back to respond

High intensity ASD: frowning, hands shaking, looking away, intense fixation of gaze, monotone voice

PD: The second is that you also have the right to telephone and speak to a friend or a relative.

S: Or a lawyer?

Non-ASD: eye contact, appropriate expression

Low intensity ASD: looking away from the interviewer when he speaks and back to respond, finger tapping

High intensity ASD: looking down and away, shaking hands, monotone voice

PD: I'll get to that. That's the second part. You have the right to telephone to speak to a friend or a relative to explain where you are and arrange or attempt to arrange to have a friend or a relative present during the questioning. If you do wish to speak to or telephone a friend or a relative or arrange to have a friend or a relative present during this questioning here today we can delay our questioning for a reasonable time for that purpose. Do you understand that?

S: Yes

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: finger tapping, looking away when the interviewer speaks, monotone voice

High intensity ASD: frowning, shaking hands, looking away to answer

PD: You also have the right to telephone and speak to a lawyer of your choice and arrange or attempt to arrange to have a lawyer present during questioning. Ok? We will also suspend our questioning for a reasonable time so that you can arrange to speak to or have a lawyer present here with us here while we are questioning you. Do you understand?

S: Yes.

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: finger tapping, looking away when the interviewer speaks, monotone voice

High intensity ASD: looking away at wall, hands bouncing, eyebrow twitching, loud verbal response

PD: Is there anyone you would like to speak to or telephone before we start?

S: Firstly, do I even have to be here or is this me being polite?

Non-ASD: eye contact, appropriate expression

Low intensity ASD: monotone voice, looking down and back up while the interviewer speaks, finger tapping

High intensity ASD: hands bouncing, looking away, monotone voice

PD: No. You're not under arrest and you are free to leave at any time unless you are arrested. So if you want to walk out of the room right now then that is your choice. We're certainly not going to physically prevent you from doing that. But we've received information regarding an event and just want to ask you some questions about what you might know about it.

PD: Can I ask how old you are?

S: I'm 22

PD: And are you a foreign national?

S: I'm Australian.

PD: You don't hold citizenship in any other country?

S: No. Citizen of Australia

PD: And are you under the influence of a drug or alcohol at present?

S: No

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: monotone voice, looking down and back up while the interviewer speaks, finger tapping, rapid blinking

High intensity ASD: looking away, intense fixation of gaze, frowning, hands bouncing, blinking, eyebrows twitching, looking down, monotone voice

PD: No. Ok. That's all the legal stuff that I have to ask you. As I said, that stuff applies from now until we finish talking to you today. Now we've received some information that potentially connects you to a man that we currently have in custody for multiple home robberies that have occurred in the area over the last year.

S: Where did you get this information?

Non-ASD: eye contact, appropriate inquisitive expression

Low intensity ASD: finger tapping, looking away when the interviewer speaks

High intensity ASD: looking away, knee bouncing, frowning, rapid blinking

PD: We'll get to that in a moment, but first I have to ask whether you know Mark Fischer?

S: Yes I do

PD: How do you know him?

S: We know each other from high school.

PD: Would you consider yourself friends?

S: We had a couple of classes together, but he wasn't really one of my mates.

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: monotone voice, quiet voice

High intensity ASD: looking away, eyes darting around, eyebrow twitching, monotone voice

PD: Have you seen Mark much in the last few years since you've finished school?

S: Not really. Just at random parties and out at some places.

PD: So you never spend time together as friends just one on one or in a group?

S: Well I guess sometimes in a group at the parties, but otherwise we never hung out just us.

PD: And where were these parties located where you would run into Mark?

S: Mostly just at houses from people at high school, like a house party.

Non-ASD: eye contact, appropriate expression

Low intensity ASD: looking away when responding, rapid blinking

High intensity ASD: intense staring when questioned and responding, quick pace of answers with monotone voice

PD: Can you give me the names of these people who hosted the parties?

S: Uh … Lachy, he always has parties at his place. Lachy Reeves. And Mikaela Short had some. There were lots of just random ones I would see him at because of school friends.

PD: So would you say you were in the same circle of friends?

S: Nah, we just know a lot of the same people.

PD: Ok, so you would see him around a bit at these parties but wouldn't consider yourself close with him.

S: Correct

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: looking away to respond, finger tapping

High intensity ASD: fixation of gaze, rapid verbal responses, increased volume for "correct" response

[…]

PD: Now, have you heard about the robberies that Mark has been arrested for

S: Yeah it's been all over the news

PD: Are you prepared to talk to us about that?

S: Um. What do you want to know?

PD: Can you tell me what you know about it?

S: Well … I know that they're saying there's been about 10 robberies in the last year of different houses and that Mark's under arrest for committing them

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: finger tapping, quieter voice

High intensity ASD: monotone voice, looking down when the interviewer asks questions and eye contact when responding

PD: Do you know anything else about the nature of those robberies? The types of houses or any weapons used?

S: Only what they've said on the news sites – that they've mostly been the homes of older people … and I think they said he used a knife or a gun

PD: And do you know what it was he was stealing?

S: I think just jewellery and that sort of stuff …

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: looking away at times when responding

High intensity ASD: rapid blinking, shifted forward and repeatedly massaged his head and covered face whilst doing this

PD: Ok. And were you surprised when you found out that Mark had been charged for the robberies?

S: Yeah of course, I mean, it's shocking to actually know someone who is all over the news and who they are saying did all this stuff

Non-ASD: eye contact, appropriate expression (surprise about Mark), and gestures,

Low intensity ASD: monotone voice, finger tapping

High intensity ASD: small smile, monotone voice

PD: Did you ever suspect he would be the type of person to do something like that?

S: I mean, I don't know him very well so couldn't really answer that

PD: And can you remember the last time you would have seen Mark?

S: Um … not really. It might have been a month or so ago at one of Lachy's parties. I didn't really see him much that night though.

Non-ASD: eye contact, appropriate expression

Low intensity ASD: monotone voice, finger tapping, rapid blinking

High intensity ASD: monotone voice, small smile, tapping fingers

PD: Do you remember the date of the party?

S: It was either June or July, but I'd have to check the actual date with someone else.

PD: You said you didn't see him much that night, why is that?

S: Just kept to himself a lot that night, but he always did, and I'm not that close with him so had no reason to go over and talk with him

PD: And you wouldn't describe Mark's behaviour or appearance as any different from how he is usually?

S: Nope, pretty much the same

Non-ASD: eye contact, appropriate expression, shook head on "nope"

Low intensity ASD: rapid blinking, monotone voice

High intensity ASD: tapping finger, monotone voice, rapid blinking, rapid verbal response

PD: Ok […]

PD: Now, what do you do for work?

S: I've been at JB Hi-Fi for the last couple of years, almost three years

PD: Ok and what is your role there?

S: Just customer service, sales and other stuff

PD: And what did you do before that?

S: Well I went to uni after high school, but didn't really enjoy that so got the job at JB and just been there since.

PD: What were you studying?

S: Computer science

PD: So you've been at JB Hi-Fi then for three years since dropping out?

S: Yeah, around that

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: finger tapping, monotone voice

High intensity ASD: look away when responding, monotone voice,

PD: And have you done any travelling since working there?

S: Um, yeah but I don't see why that matters?

PD: Just getting an idea of your life, you don't have to answer anything you don't want to

S: Ok, well yeah I've been to Europe and South America

PD: Were you away for long on those trips?

S: About three months for each

PD: And that was while you were working?

S: Yeah

PD: And your boss was fine with you taking that long off of work?

S: Yeah, well, I'm pretty close with my manager and he had no problem with it

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: finger tapping, repetitive blinking, monotone voice

High intensity ASD: finger tapping, repeatedly scratching chin on shoulder, looking away when responding

PD: Ok. And when you would go on these trips – were you backpacking and staying in hostels and that sort of thing?

S: I'm not sure why this is relevant, but yeah just hostels and sometimes stay in a bit nicer places

PD: And would you use the money you'd saved from working at the store on these holidays? It must have been pretty expensive to be away for that long

S: Yep

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: intense blinking

High intensity ASD: looking away to respond, monotone quiet voice

PD: Ok. And do you live on your own?

S: No I live in a share house with two others

PD: Can you tell me the names of those others and how you met?

S: Steve Fischer – I met at school, and James Heinrich who I know from work

PD: Is that the Steve Fischer who is the brother of Mark Fischer?

S: Yes

PD: And how long have you been living together for?

S: About two years now, I moved out of my parents place when I was 20

PD: And are you good friends with Steve?

S: We were never close in high school, he was two years above me. But I heard from other friends that Steve and James were looking for a new housemate so we became closer since living together

Non-ASD: eye contact, appropriate expression and gestures, nodding for "yes"

Low intensity ASD: finger tapping

High intensity ASD: looking away to respond, quieter voice, finger tapping,

PD: Would you call yourself friends?

S: Yeah I would

PD: So you spend time together apart from just living with each other?

S: Yeah we go out together on the weekends and just hang out at the house

Non-ASD: eye contact, appropriate expression

Low intensity ASD: monotone voice, rapid blinking

High intensity ASD: finger tapping, monotone, rapid blinking

PD: And would Mark ever come and visit the house?

S: Not really, Steve and Mark aren't really that close

PD: By not really do you mean he never came over or he did visit a few times?

S: There were maybe a couple of times that he came over to see Steve, but I only saw him briefly or he was there when I wasn't home

PD: Is there a particular reason he and his brother aren't close?

S: I guess they are both just different people and get on each other's nerves a bit.

PD: Have you ever seen them fighting?

S: No

PD: Has there ever been any violence in your house?

S: No, none of us are violent people

Non-ASD: eye contact, appropriate expression

Low intensity ASD: quiet voice, monotone

High intensity ASD: quiet voice, monotone

PD: So when Mark would come and visit the house, on the occasions you saw him there, did he ever bring anything with him?

S: Like what?

PD: Just anything you noticed

S: I never saw him for long, I was always on my way out. I guess he would have had his phone on him. He might have brought some food or beer or something

PD: You never saw him bring any electronics? Stereos, TVs, that sort of thing?

S: No

PD: Ok. And you never saw any weapons or were aware that he had a weapon on him at any time?

S: No

Non-ASD: eye contact, appropriate expression and gestures

Low intensity ASD: monotone voice

High intensity ASD: monotone, quiet voice, looking away to respond and for some questions

PD: And the other man you live with … James Heinrich. You said you knew him from work?

S: Yeah, he's my manager at the store

PD: And you consider yourself good friends with James?

S: Yeah we've worked together since I've been at JB. We get on well.

PD: And is James close with Steve or Mark?

S: Yeah he was living with Steve for about a year before I joined them. They met through mutual friends. They're quite close now. He's known Mark longer than I have but I wouldn't say they're friends.

Non-ASD: eye contact, appropriate expression and gestures, lack of eye contact when providing a response due to concentration when thinking about the answer

Low intensity ASD: exaggerated intonation

High intensity ASD: exaggerated intonation

PD: Do you know of James and Mark spending much time together?

S: Not really

PD: Have you ever seen them together?

S: Only when Mark would come to the house, but like I said before I was never there for long when he was over

PD: Was that a conscious decision to not be there when he came?

S: Nah I didn't have a problem with him, it just happened to always be when I was leaving the house that he would come.

Non-ASD: eye contact, appropriate expression

Low intensity ASD: quiet voice

High intensity ASD: odd intonation, knees bouncing, looking around the room

PD: So for the months when you were overseas travelling, did someone else move in or did you continue to pay the rent?

S: I was only overseas for the South America trip when I was living at the house, I couldn't find anyone else to live there so I ended up paying the rent

PD: So you tried to find someone?

S: Yeah just through asking friends

PD: So there was no one else who lived with the others in the house while you were overseas?

S: Nah. I mean, they might have had people stay for a couple of nights, but there was no one staying in my room or paying my share of the rent.

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response

Low intensity ASD: appropriate expression, some lack of eye contact when thinking about the response

High intensity ASD: looking away to respond, fingers tapping, monotone voice, rapid blinking

PD: And do you know the dates that you were away on that South America trip?

S: I can't recall the exact dates but it would have been from about February to May last year

PD: Did you notice anything different in the house when you returned from the trip?

S: Um … No?

PD: None of the boys had bought anything new while you were away?

S: No

PD: And do you know whether Mark had visited in those months you were away?

S: I didn't ask so I'm not sure

PD: None of the boys mentioned him coming over?

S: No

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures

Low intensity ASD: monotone voice, rapid blinking, quick responses

High intensity ASD: rapid verbal responses, finger tapping, monotone voice, rapid blinking

PD: Now, just going back to the robberies that were committed

S: Ok

PD: Do you know any information about anyone else who might have been working with Mark during these robberies?

S: No. I mean he had quite a few friends but I don't know anything more about the robbery other than what's been reported in the news

PD: Right. Because there were many more home robberies that occurred around the same time as those that Mark Fischer is suspected of committing, but with those home owners reporting multiple robbers in their home – not just the one

S: Ok

PD: Mark has not admitted to any of the robberies, despite physical evidence of him being in several of the homes … And it happens that in one of those homes where there were multiple robbers reported by the residents, Mark's DNA was found.

PD: Which leads us to believe that it was in fact Mark that was robbing those homes, potentially with other people

PD: So in speaking with you today we are trying to get an idea about those people who were seeing Mark during period in which these crimes were committed. So any information about anyone else who was close to Mark will help our case.

S: Yeah. Like I said before, I really didn't know him or see him that much, so I couldn't really tell you who his friends are

Non-ASD: eye contact, appropriate expression

Low intensity ASD: monotone voice, looking away when the interviewer was speaking

High intensity ASD: knee bouncing, monotone voice, rapid blinking, continually looking away from and then toward the interviewer

PD: That's ok. Were you aware that Mark sometimes carried a gun with him?

S: I wasn't before, but I did see that on the news

PD: Did you know he was in possession of any guns at all, or that he knew how to use one?

S: I know he used to go out hunting. So I guess from that I knew that he could use one. But I didn't know that he kept any on him

PD: How did you know that he would go out hunting?

S: Steve used to tell stories about how their Dad used to take them out when they were teenagers. But I hadn't heard of any recent trips so I'm not sure whether he still did it

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures

Low intensity ASD: monotone voice

High intensity ASD: monotone voice, looking down for the questions and responses

PD: So Steve also knew how to use a gun?

S: Yeah, but not very well. I know they used to go out hunting because Steve would always tell stories about how bad he was at shooting

PD: He would tell these stories often?

S: Well not often, but it has come up a couple of times

PD: In what context would these come up?

S: Usually if we were playing Zombies or something … that's a shooting game on the PlayStation. Steve's pretty bad at it, and me and James would get stuck into him about it. He'd get all funny and defensive and blame it on his Dad for never teaching him to shoot properly

> *Non-ASD: eye contact, appropriate expression (amusement at how bad Steve was at the game), appropriate gestures*
>
> *Low intensity ASD: monotone voice, some rapid blinking*
>
> *High intensity ASD: knee bouncing, monotone voice, eyebrows twitching, scratching head on shoulder repeatedly*

PD: Have you ever shot a real gun?

S: Nope, just the game version

PD: Have you ever held a real gun before?

S: No

PD: Police seized several firearms from Mark Fischer's home following his arrest. And it was reported by those home owners who witnessed the robberies that firearms were used to intimidate and subdue them, but that he never fired them.

S: Right

PD: The family who were reportedly robbed by multiple individuals said that two of the robbers had guns pointed at the children when they went to see what items could be stolen from their rooms. One of them as young as five.

S: Oh wow that's awful

PD: Did you know anyone who would hang around with Mark who had a gun or would go shooting?

S: No. I didn't know any of his friends.

PD: And you don't know the last time he and his brother would have gone hunting?

S: I don't think Steve has been hunting since high school. Unless he hasn't told me. I have no idea of the last time Mark went hunting.

> *Non-ASD: eye contact, appropriate expression (sadness to hear about children), appropriate gestures*
>
> *Low intensity ASD: monotone, some repetitive blinking, looking down at some points, limited emotion in verbal response for "oh wow that's awful"*
>
> *High intensity ASD: monotone voice, intense staring at interviewer, finger tapping, no emotional verbal expression for "oh wow that's awful",*

PD: Ok. Are you able to recall your movements for me two months ago on Tuesday April 5th

S: Umm a Tuesday, I would have been at work till about 6ish then come home and probably just stayed in, watched TV or something

PD: And what time would you have got to work that morning?

S: Just before 10 is when I would normally get in

PD: Would your workplace be able to confirm that you were there during those times?

S: Yes

PD: And was anyone home when you went back to the house that night

S: I don't remember that specific night, but yes we usually stay in on the weeknights

> *Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures*
>
> *Low intensity ASD: looking away when responding, monotone voice*

High intensity ASD: knee bouncing, looking away from interviewer to respond, monotone voice, repeatedly scratching head,

PD: You don't remember anything particular about that night Tuesday April 5th?

S: No … Actually, sometimes we would go to the local pub on a Tuesday night for dinner cos they have different specials on. But I can't be sure whether we would have gone there that Tuesday

PD: Would it be just you three housemates that would go to the pub on a Tuesday?

S: Yeah. We'd sometimes see a couple of people we knew from school and stuff, but we always just sat together us three

PD: And which pub was that?

S: The Fox

PD: Was it ever that only two of you would go there, or always all three of you?

S: I can't remember a time where only two of us would have gone

PD: So wherever you were on the night of Tuesday April 5th, both your housemates Steve and James were also present and you would each be able to confirm the others whereabouts?

S: Correct

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures

Low intensity ASD: finger tapping, monotone voice

High intensity ASD: odd vocal intonation, looking around the room, finger tapping

PD: I know you've told us you don't see him much, but would it have been possible you would have seen Mark Fisher that night?

S: Um … I wouldn't rule it out, but I would say it was highly unlikely that I would have seen him that particular night since I rarely do

PD: So you can't be certain that you didn't see him?

S: No I can't be sure. I'd have to ask the other guys, but even then I'm not sure they would remember either unless it was for some occasion

PD: Have you ever seen Mark at The Fox?

S: Yeah but never sat with him, just seen him at the bar or with other people

PD: So it's possible that you could have seen him there that night?

S: Yeah

> *Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures*
>
> *Low intensity ASD: monotone voice, expressionless*
>
> *High intensity ASD: knees bouncing, monotone voice, rapid responses*

PD: And so you said most weeknights you boys would all stay in and watch TV or something?

S: Yeah, except for sometimes going to the pub on a Tuesday

PD: Were there any other things you'd all sometimes do at night during the week?

S: Um … Well the others would go to the gym sometimes at night

PD: How often would they go there?

S: Well it depended on their days, with Steve at uni now he would go during the day when he didn't have classes. But sometimes he would go at night with James. James would always go on weeknights or weekends because he worked during the day

PD: Would you ever go with them?

S: Sometimes, just on a guest pass cos I'm not a member

PD: And approximately how long would you boys spend at the gym?

S: Just a couple of hours or less. Not too long

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures

Low intensity ASD: monotone voice, some rapid responses, looking up during some responses

High intensity ASD: looking around the room, monotone voice

PD: And do any of you play any sport?

S: Um… not anymore. We used to all play touch football on the same team but that was only for one season

PD: When was that?

S: About a year ago

PD: And why did that stop?

S: Season ended, none of us could really be bothered with it anymore

Non-ASD: appropriate expression, some lack of eye contact when thinking about the response, appropriate gestures

Low intensity ASD: finger tapping, monotone voice

High intensity ASD: knees bouncing, monotone voice, looking away when interviewer asked questions

PD: Ok. So, we know Mark has committed an offence here, in fact a number of offences, and we will be investigating that further. Would you be prepared to make a statement about what you've told us today – your relationship with Mark, what you know about him and his brother Steve, and your movements on the 5th of April?

S: Um … I think I'd like to contact a lawyer first?

PD: I understand you want to seek legal advice, that's completely your right to do so. But obviously if you provide us a written statement that we might be able to use in court later down the track then that would form a very significant part of our investigations.

S: I'd like to seek legal advice on that.

Non-ASD: eye contact, appropriate expression, appropriate gestures

Low intensity ASD: finger tapping, some repetitive blinking, monotone voice

High intensity ASD: knees bouncing, looking away and back toward the interviewer, monotone voice,

Appendix B

Materials for Clinician Assessment of ASD Behaviour

Scales presented to clinicians after they viewed the suspect interview:

Diagnosis ratings

Please indicate your assessment of how likely it is that the interviewee's behaviours are consistent with each of the following diagnoses (listed in alphabetical order)

And please indicate how confident you are in your decision by typing a response that may range from 0% (not at all confident) to 100% (highly confident) next to each row where you indicated the likelihood of that disorder being present:

1. Anxiety Disorder
2. Autism Spectrum Disorder
3. Bipolar Disorder
4. Mood Disorder
5. Obsessive-Compulsive Disorder
6. Personality Disorder
7. Post-Traumatic Stress Disorder
8. Schizophrenia
9. No diagnosis

1	2	3	4	5	6
Highly Unlikely	Moderately Unlikely	Mildly Unlikely	Mildly Likely	Moderately Likely	Highly Likely

Confidence (0 – 100%) _____[10]

[10] These ratings of the likelihood of the disorder, and confidence in the rating, were made separately for each disorder and no diagnosis disorder

Behavioural appropriateness rating

Please consider the degree to which the interviewee behaved in a way that you would expect a neurotypical individual to act during an interview, and then select the option that best represents your judgments of the following statements:

1. The interviewee looked tense and anxious
2. The interviewee maintained an appropriate level of eye contact with the interviewer
3. The interviewee displayed paranoia regarding what the interviewer was asking him
4. The interviewee's attention appeared distracted
5. The interviewee spoke for an appropriate length of time when answering questions
6. The interviewee showed appropriate emotional expression given the nature of the situation they were describing
7. The interviewee presented themselves appropriately for an interview
8. The interviewee spoke with an appropriate tone of voice including pitch, volume and pace
9. The interviewee looked sad
10. The interviewee displayed an appropriate level of body movement during the interview
11. The interviewee acted aggressively toward the interviewer
12. The interviewee used appropriate language in response to questioning
13. The interviewee looked hypervigilant

1	2	3	4	5
Never	Seldom	Sometimes	Mostly	Always

Appendix C

Research Tools: Questionnaire

Instructions given to participants before the video begins

You are about to watch a police interview with a man who is suspected of being involved in several robberies that occurred in 2014/15. At different points during the interview you will be asked a number of questions about the suspect and your own perceptions.

Your task will be to determine as quickly and accurately as possible whether the suspect was involved in the crime, or innocent. You may indicate your decision at any time during the interview when you are given the option to make a decision.

Regardless of when you indicate your decision – i.e., during or at the end of the interview – you will receive an additional $2.50 if your decision is accurate. You can earn an additional $5 if your decision is both accurate and made quickly, based on the average time it has taken most participants to reach an accurate decision.

If you make your final decision of involvement before the end of the interview, you will still be required to watch the remaining interview and continue to answer any questions about the suspect.

During the interview, the suspect will verbalize a piece of information that will either clearly reveal their involvement or their innocence. This is randomized, so it may come at any time in the interview you are viewing.

Scales presented to participants at six-minute intervals during the video

Negative Affect Scale

Please consider your **personal feelings**, and select the number that represents how you feel about the following statements:

1. I am feeling tense
2. I am feeling disgusted
3. I am feeling irritated
4. I am feeling anxious
5. I am feeling restless
6. I am feeling unsympathetic
7. I am feeling dissatisfied
8. I am feeling discouraged

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Suspiciousness Scale

Please consider your **impressions of the suspect**, and select the number that represents how you feel about the following statements:

1. The suspect made an impression of hiding the truth entirely or partly
2. The suspect had the look of a criminal about him or made an anxious, dangerous or emotionally instable impression
3. You would consider the suspect capable of being involved in the crime

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Hostility and Disrespect Scale

Please consider your **impressions of the suspect**, and select the number that represents how you feel about the following statements:

1. This suspect followed instructions and attempted to answer all questions

2. You believe the suspect disrespected the interviewer's authority
4. The suspect appeared to be angry

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

5. You believe any disrespect shown was intentional

0	1	2	3	4	5	6
N/A	Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Memory Report Scale

Please consider **the characteristics of the memory report** given by the suspect, and select the number that represents how you feel about the following statements:

1. This suspect's memory report was detailed
2. This suspect's memory report was consistent
3. This suspect's memory report was confident

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Credibility Scale

Please consider **the suspect's presentation and personal characteristics**. Please select the number that represents how you feel about the following statements.

1. This suspect was honest
2. This suspect was trustworthy
3. This suspect was believable
4. This suspect was reliable
5. This suspect was sincere

Likelihood of guilt rating

Please consider your impression of the **suspect's likely guilt** of being involved in the crime and select the option that represents how you feel about the following statement.

1. You believe the suspect is guilty of being involved in the crime

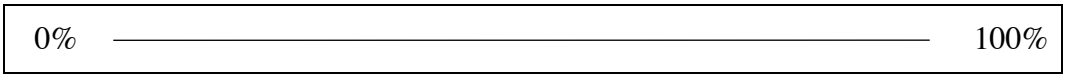
1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Verdict

At this stage, please indicate whether you believe the suspect is 'guilty' or 'innocent' in regard to being involved in the crime. Please also indicate your confidence in this decision by placing the marker on the line anywhere from 0-100%, with 0 indicating no confidence and 100 indicating full confidence in your decision.

At this stage you may also select to enter this as your final decision. If you wish to do that please select 'submit as final decision', or if you are not ready to make that decision yet and wish to see more of the interview before deciding, please select 'continue without decision'. Keep in mind, even if you submit this as your final decision you will also continue to watch the rest of the interview and continue to make ratings.

1	2
Guilty	Innocent



1	2
Submit as final decision	Continue without decision

Behavioural Appropriateness Scale

Please consider the degree to which the **suspect behaved in a way that you would expect an individual to act during an interview**, and select the number that represents the degree to which each behaviour was displayed by the suspect:

1. The suspect maintained an appropriate level of eye contact with the interviewer
2. The suspect showed appropriate emotional expression given the nature of the situation they were describing
3. The suspect spoke with an appropriate tone of voice including pitch, volume and pace
4. The suspect displayed an appropriate level of body movement during the interview
5. The suspect spoke for an appropriate length of time when answering questions
6. The suspect used appropriate language in response to questioning
7. The suspect was presented themselves appropriately for an interview

1	2	3	4	5
Never	Seldom	Sometimes	Mostly	Always

At the end of the experiment, participants were asked to fill out some demographic questions:

1. Age
2. Gender
3. Culture/ Ethnicity

Criminal Responsibility Scale (for Study 3)

Please select an answer to the following questions regarding why you believe the suspect was guilty of involvement in the crime:

1. The suspect was involved in the crime due to his living situation
2. The suspect was personally responsible for his own involvement in the crime
3. The suspect was involved in the crime for reasons beyond his control
4. The suspect was involved in the crime for his own personal gain
5. The suspect was involved in the crime due to pressure or coercion from another individual
6. The suspect was involved in the crime due to his personal character

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Appendix D

Indirect Effect of Behaviour on Verdict at each Time Point for Study 1

Table D

Unstandardised regression coefficient (and standard error) for each of the pathway effects of behaviour on the verdict at each time points across the interview comparing low intensity and high intensity behaviours with non-ASD behaviours

		Time point				
Pathway	Behaviour	1	2	3	4	5
IN	Low	0.35 [-0.06, 0.87]	0.76 [0.28, 1.43]*	0.48 [0.03, 1.07]*	0.21 [-0.22, 0.80]	0.31 [-0.19, 0.89]
	High	0.51 [-0.11, 1.22]	1.11 [0.39, 1.96]*	0.70 [0.03, 1.51]*	0.30 [-0.34, 1.11]	0.45 [-0.29, 1.27]
IN - NA	Low	0.02 [-0.04, 0.13]	0.01 [-0.08, 0.12]	0.04 [-0.05, 0.18]	0.03 [-0.11, 0.19]	0.01 [-0.08, 0.12]
	High	0.04 [-0.11, 1.22]	0.01 [-0.12, 0.16]	0.06 [-0.07, 0.24]	0.04 [-0.16, 0.27]	0.01 [-0.12, 0.16]
IN - SU	Low	0.40 [0.20, 0.71]*	0.38 [0.16, 0.74]*	0.69 [0.33, 1.24]*	0.73 [0.34, 1.31]*	0.43 [0.13, 0.84]*
	High	0.59 [0.30, 0.97]*	0.56 [0.25, 1.00]*	1.01 [0.54, 1.67]*	1.06 [0.53, 1.74]*	0.62 [0.20, 1.11]*
IN - NC	Low	0.28 [0.11, 0.56]*	0.22 [0.05, 0.52]*	0.12 [0.01, 0.33]*	0.27 [0.08, 0.63]*	0.38 [0.12, 0.80]*
	High	0.41 [0.18, 0.75]*	0.32 [0.06, 0.70]*	0.18 [0.01, 0.45]*	0.39 [0.11, 0.86]*	0.55 [0.19, 1.09]*
IN - NA - SU	Low	0.04 [0.01, 0.10]*	0.04 [0.01, 0.10]*	0.07 [0.02, 0.17]*	0.09 [0.03, 0.22]*	0.05 [0.01, 0.12]*
	High	0.06 [0.02, 0.13]*	0.05 [0.02, 0.14]*	0.10 [0.03, 0.24]*	0.13 [0.05, 0.29]*	0.07 [0.02, 0.16]*

IN - NA - NC	Low	0.01 [-0.00, 0.05]	0.00 [-0.01, 0.03]	-0.00 [-0.03, 0.01]	-0.01 [-0.05, 0.02]	-0.00 [-0.04, 0.03]
	High	0.02 [-0.00, 0.07]	0.00 [-0.02, 0.04]	-0.00 [-0.04, 0.02]	-0.01 [-0.08. 0.03]	-0.00 [-0.06, 0.04]
IN - Sus - NC	Low	0.12 [0.05, 0.25]*	0.13 [0.03, 0.30]*	0.16 [0.01, 0.40]*	0.31 [0.10, 0.70]*	0.36 [0.14, 0.73]*
	High	0.18 [0.08, 0.34]*	0.19 [0.04, 0.41]*	0.23 [0.01, 0.54]*	0.45 [0.15, 0.98]*	0.53 [0.21, 1.02]*
IN - NA - SU – NC	Low	0.01 [0.00, 0.03]*	0.01 [0.00, 0.04]*	0.02 [0.00, 0.06]*	0.04 [0.01, 0.12]*	0.04 [0.01, 0.10]*
	High	0.02 [0.01, 0.05]*	0.02 [0.00, 0.06]*	0.02 [0.00, 0.08]*	0.06 [0.01, 0.16]*	0.06 [0.02, 0.14]*
NA	Low	-0.02 [-0.21, 0.03]	-0.01 [-0.23, 0.12]	-0.06 [-0.33, 0.06]	-0.03 [-0.33, 0.10]	-0.01 [-0.22, 0.10]
	High	-0.01 [-0.18, 0.04]	-0.00 [-0.18, 0.08]	-0.04 [-0.32, 0.04]	-0.02 [-0.27, 0.07]	-0.01 [-0.19, 0.07]
NA - SU	Low	-0.04 [-0.13, 0.03]	-0.06 [-0.17, -0.00]*	-0.11 [-0.32, 0.06]	-0.10 [-0.30, 0.02]	-0.06 [-0.19, -0.00]*
	High	-0.02 [-0.12, 0.06]	-0.03 [-0.14, 0.04]	-0.08 [-0.28, 0.03]	-0.06 [-0.24, 0.11]	-0.04 [-0.15, 0.04]
NA - NC	Low	-0.01 [-0.08, 0.01]	-0.00 [-0.05, 0.02]	0.00 [-0.02, 0.05]	0.01 [-0.02, 0.09]	0.00 [-0.04, 0.07]
	High	-0.01 [-0.07, 0.02]	-0.00 [-0.04, 0.01]	0.00 [-0.01, 0.05]	0.00 [-0.01, 0.08]	0.00 [-0.03, 0.05]
NA - SU - NC	Low	-0.01 [-0.05, 0.01]	-0.02 [-0.08, -0.00]*	-0.03 [-0.10, -0.00]*	-0.04 [-0.17, 0.00]	-0.05 [-0.16, -0.00]*
	High	-0.01 [-0.04, 0.02]	-0.01 [-0.06, 0.01]	-0.02 [-0.09, 0.00]	-0.02 [-0.14, 0.04]	-0.03 [-0.14, 0.03]
SU	Low	0.38 [0.05, 0.84]*	-0.26 [-0.73, 0.08]	-0.61 [-1.24, -0.11]*	-0.36 [-1.05, 0.22]	-0.15 [-0.53, 0.13]

	High	0.96 [0.49, 1.59]*	0.08 [-0.27, 0.47]	-0.07 [-0.62, 0.45]	0.36 [-0.26, 1.02]	0.24 [-0.02, 0.67]
SU - NC	Low	0.12 [0.01, 0.31]*	-0.09 [-0.29, 0.02]	-0.14 [-0.42, -0.01]*	-0.15 [-0.55, 0.06]	-0.13 [-0.46, 0.10]
	High	0.30 [0.12, 0.59]*	0.03 [-0.09, 0.20]	-0.02 [-0.20, 0.10]	0.15 [-0.08, 0.58]	0.20 [-0.01, 0.57]
NC	Low	0.15 [-0.07, 0.47]	-0.28 [-0.69, -0.04]*	-0.18 [-0.51, -0.01]*	-0.18 [-0.63, 0.06]	-0.35 [-0.83, -0.06]*
	High	-0.33 [-0.71, 0.05]*	-0.34 [-0.82, -0.06]*	-0.21 [-0.53, -0.02]*	-0.32 [-0.92, -0.02]*	-0.65 [-1.32, -0.21]*
Total effect	Low	0.60 [-0.07, 1.27]	0.37 [-0.29, 1.04]	-0.03 [-0.70, 0.63]	0.37 [-0.30, 1.03]	0.42 [-0.24, 1.08]
	High	0.63 [-0.04, 1.29]	0.77 [0.08, 1.45]*	0.39 [-0.27, 1.05]	1.03 [0.35, 1.70]*	0.98 [0.30, 1.66]*
Total indirect effect	Low	1.81 [0.97, 2.73]*	0.83 [-0.08, 1.84]	0.44 [-0.56, 1.52]	0.79 [-0.40, 2.01]	0.80 [-0.21, 1.85]
	High	2.71 [1.75, 3.73]*	1.98 [1.04, 3.03]*	1.87 [0.85, 3.01]*	2.53 [1.35, 3.87]*	2.01 [0.98, 3.08]*
Direct effect	Low	-0.75 [-1.73, 0.22]	-0.12 [-1.15, 0.91]	-0.63 [-1.70, 0.44]	-0.20 [-1.27, 0.88]	-0.00 [-1.02, 1.02]
	High	-1.58 [-2.67, -0.50]*	-0.86 [-1.95, 0.22]	-1.27 [-2.36, -0.17]*	-0.62 [-1.77, 0.53]	-0.40 [-1.50, 0.71]

Note. 'IN' is inappropriateness; 'NA' is negative affect; 'SU' is suspiciousness; 'NC' is non-credibility

* is a significant effect, as the 95% bootstrap confidence interval does not pass through zero

Appendix E

Attention Check Questions

Questions included in Studies 2a, 2b and 3

After the initial crime information:

1. What is the type of crime that is being investigated by police in this case?
    a. Murder
    b. Robbery
    c. Sexual assault

After the first part of the suspect interview:

2. Was the suspect arrested during the footage you just watched?
    a. Yes
    b. No
3. Does the suspect indicate that he knows who Mark Fischer is?
    a. Yes
    b. No

After the second part of the suspect interview:

4. When was the last time the suspect said that he saw Mark Fischer?
    a. At a shopping mall
    b. In the back of a car
    c. At a party
5. Does the suspect live by himself?
    a. Yes
    b. No
6. Was there anyone (apart from the interviewer) that you saw on the screen sitting next to the suspect during the video footage you just watched?

a. Yes

b. No

After the third part of the suspect interview:

7. Was the suspect arrested during the footage you just watched?

    a. Yes

    b. No

8. Did the suspect talk about his house/housemates during the section of the interview you just watched?

    a. Yes

    b. No

Additional attention checks questions for Studies 2b and 3

After the fingerprint expert interview:

1. From the interview with the fingerprint expert you just viewed, was the expert holding paper in his hand at any time while he was being interviewed?

    a. Yes

    b. No

After the bystander interview:

2. From the interview with the bystander that you just viewed, did the bystander indicate that she knew who the suspect Michael Jennings was?

    a. Yes

    b. No

After the third part of the suspect interview:

3. From the first interview you watched with the fingerprint expert, did the expert conclude that when compared with the prints found on the firearms taken into evidence:

   a. It was highly likely there was a close match with the prints taken from the suspect you just watched being interviewed, Michael Jennings
   b. It was highly unlikely there was any match with the prints taken from the suspect you just watched being interviewed, Michael Jennings
   c. There was no decisive result because the prints were not clear enough to compare with those prints taken from the suspect you just watched being interviewed, Michael Jennings

4. From the second interview you watched with the bystander from one of the parties that the interviewed suspect Michael Jennings attended, did the bystander conclude that Michael Jennings and the man arrested, Mark Fischer, were:
   a. Good friends
   b. Were not good friends
   c. She was unsure as to how close they were

Appendix F

Written Evidence Manipulation

Case background:

Police are currently investigating a case regarding a series of home robberies that occurred during 2014 and 2015. They have charged and arrested a man named Mark Fischer who was believed to be the ring leader in those robberies. There is suggestion, however, that there were other men working with Mark to commit these crimes.

During at least one of the robberies the victims reported that there were multiple men present, and those men had guns in their possession. Several firearms were seized from Mark Fischer's home during his arrest. Those firearms were analysed by a fingerprint expert. Police have identified several men as potential suspects, and results from fingerprint analyses revealed close matches for these prints with two of those suspects, Steve Fischer and James Heindrich.

Incriminating: Additionally, the fingerprint expert testified that there was a strong chance that the partial prints found on one of the guns belonged to Michael Jennings, whom police are about to interview regarding his involvement in the crime.

Exonerating: However, the fingerprint expert testified that there was only a weak chance that the partial prints found on one of the guns belonged to Michael Jennings, whom police are about to interview regarding his involvement in the crime.

Neutral: However, the fingerprint expert testified that it was not clear whether or not the partial prints found on one of the guns belonged to Michael Jennings, whom police are about to interview regarding his involvement in the crime.

You are about to watch a section of a police interview with the fingerprint expert regarding the prints that were discovered on the firearms. Next, you will watch a section of an interview with a bystander from one of the parties that Michael Jennings attended with the

ringleader of the robberies, Mark Fischer. Following these interviews, you will watch Michael Jennings be interviewed by police regarding his involvement in the crime. Throughout the video clips of the different interviews you will be required to make a series of judgments regarding the suspect's level of guilt for being involved in the crime.

Appendix G

The Effect of the Written Evidence Manipulation on Impressions of the Suspect in Study 2a

Table G

Factorial MANOVA univariate results for the main effect of written evidence upon each impression rating separately for ASD and non-ASD behaviour

		ANOVA			
Behaviour	Measure	*df*	*F*	*p*	η^2
Non-ASD					
	Appropriateness	2, 98	0.15	.857	.003 [.000, .035]
	Credibility	2, 98	0.21	.810	.004 [.000, .043]
	Suspiciousness	2, 98	0.16	.852	.003 [.000, .037]
	Likely guilt	2, 98	0.45	.641	.009 [.000, .062]
	Memory report	2, 98	0.25	.776	.005 [.000, .047]
	Negative affect	2, 98	0.03	.967	.001 [.000, .003]
ASD					
	Appropriateness	2, 96	0.33	.721	.007 [.000, .053]
	Credibility	2, 96	0.01	.994	.000 [.000, .004]
	Suspiciousness	2, 96	0.71	.495	.015 [.000, .077]
	Likely guilt	2, 96	0.65	.522	.013 [.000, .074]
	Memory report	2, 96	0.12	.885	.003 [.000, .031]
	Negative affect	2, 96	0.40	.672	.008 [.000, .059]

Appendix H

Transcript from Fingerprint Expert Interview

Fingerprint expert interview:

1 Police Detective (PD): Please state your full name and your occupation

Fingerprint Expert (FE): My name is Andrew Caruso, and I'm a fingerprint specialist for the Queensland Police Service

2 PD: What are the duties of a fingerprint specialist for the Queensland Police Service?

FE: My duties are to compare and analyse fingerprint submissions made to our office. By this I mean we receive fingerprint evidence from crime scenes and collected evidence, as well as individual's fingerprints that are recorded at the department for comparison

3 PD: How long have you been in the fingerprint field?

FE: Almost 10 years now

4 PD: How are fingerprints compared for the purpose of making an identification?

FE: Well, fingerprints are compared by noting which characteristics match between those found at a crime scene and those we have collected from individuals. Everybody's fingers and palms have "friction ridges" on them. These ridges occur in patterns that contain specific features. So, we use these patterns and features to compare an unknown (or "latent") print with a known print, to determine if they may have come from the same person

5 PD: Did there come a time when you took the fingerprints of the individuals named Steve Fischer, James Heindrich and Michael Jennings?

FE: Yes

6 PD: When and where did that occur?

FE: It occurred on different days for each of the men over about the last month at the station here in Brisbane

7 PD: and have you brought those prints with you today?

FE: Yes (gets the prints out)

8 PD: Now in the photograph next to you there on the table, have you ever seen those items before?

FE: Yes, those were the firearms found at Mark Fischer's home. Three semi-automatic shotguns, and two semi-automatic pistols.

9 PD: And what was your purpose of having seen those firearms before?

FE: I was requested to go and examine those items by Detective Brooker for the presence of fingerprints.

10 PD: And you said those firearms belonged to Mark Fischer, who is currently under arrest for several crimes?

FE: Correct, they were taken as evidence from Mark Fischer's home

11 PD: Okay. And did you find any areas on any of the firearms that you thought might produce some usable prints?

FE: Yes. There were a number of areas that produced identifiable ridge details on various areas of the guns

12 PD: And how many unique prints did you find on these guns?

FE: Examining the five guns I found that there were four sets of unique prints, with several repeated impressions of the various unique prints across each gun

13 PD: So, they were each touched a few times by four different individuals?

FE: Correct

14 PD: Now, did there come a time when you used the prints discovered on these guns and compared these with the corresponding areas in the prints you had taken from those previously mentioned individuals… Steve Fischer, James Heindrich and Michael Jennings?

FE: Yes, as well as the individual whose home they were taken from and who is currently under arrest – Mark Fischer

15 PD: And what was the result of that examination?

Incriminating

FE: The result was that of the prints that clearly stood out across the five guns, there were clear matches with each of these men when compared with the finger and palm prints that had been collected from those individuals.

16I PD: So, that is, there were clear matches between the prints found on those guns and the prints taken from Mark Fischer, Steve Fischer, James Heindrich and Michael Jennings?

FE: Correct, and for each of those men there were several opportunities to examine potential matches with multiple touches to compare, with each showing a match

17I PD: For Michael Jennings in particular, how many different locations of his prints could you find?

FE: There were three of his prints found, all of them on the pistol. There was an area that is directly under the ring finger area and then there was an area on this (indicating) cushion side of the palm, and a thumb print on the gun magazine. These were consistent with three different touches

18I PD: Okay and you compared all three to the prints you had taken off Michael Jennings

FE: Yes

19I PD: and is it your opinion they were the same?

FE: They were made by only Michael Jennings yes

20I PD: I want to ask now about your level of confidence in your identification of the latent prints on the pistol to Michael Jennings' ink print. In this case, how certain are you that Michael Jennings left the prints on that pistol taken into evidence?

FE: I'm very certain. It is highly likely those prints found on the gun match Michael Jennings

Exonerating

FE: The result was that of the prints that clearly stood out across the five guns, there were clear matches with each of these men when compared with the finger and palm prints that had been collected from those individuals, except for Michael Jennings. There were no features from the prints taken from Michael Jennings that matched any that were found on the firearms.

16E PD: So, that is, there were clear matches between the prints found on those guns and the prints taken from Mark Fischer, Steve Fischer and James Heindrich. But there was no clear match for Michael Jennings?

FE: Correct, and for each of those men there were several opportunities to examine potential matches with multiple touches to compare, with each showing a match except for Michael Jennings

17E PD: For Michael Jennings in particular, how many different locations of unique prints could you find to compare for him?

FE: There were three on only one of the guns, a pistol, that did not match the other men, so these were examined for Michael. There was an area that is directly under the ring finger area and then there was an area on a (indicating) cushion side of the palm, and a thumb print on the gun magazine. These were consistent with three different touches

18E PD: Okay and you compared all three to the prints you had taken off Michael Jennings

FE: Yes

19E PD: and it is your opinion that they did not belong to him?

FE: Correct, they had many features that greatly differed to those prints taken from Michael Jennings, so I do not believe they belonged to him

20E PD: I want to ask now about your level of confidence in your identification of the latent prints on the pistol to Michael Jennings' ink print. In this case, how certain are you that Michael Jennings did not leave the prints on any of those firearms taken into evidence?

FE: I'm very certain. It is highly unlikely those prints found on the guns match Michael Jennings

Neutral

FE: The result was that of the prints that clearly stood out across the five guns, there were clear matches with each of these men when compared with the finger and palm prints that had been collected from those individuals, except for Michael Jennings. There were some features from the prints taken from Michael Jennings that may have matched some of the prints found on the firearms, but it wasn't a clear and decisive match as it was for the other men.

16N PD: So, that is, there were clear matches between the prints found on those guns and the prints taken from Mark Fischer, Steve Fischer and James Heindrich. But you remain uncertain whether the prints of Michael Jennings matched those found on the guns or not?

FE: Correct, and for each of those men there were several opportunities to examine potential matches with multiple touches to compare, with each showing a match. However, there were only certain features which may have been a match for Michael Jennings, but I cannot be sure as those prints were not as strong

17N PD: For Michael Jennings in particular, how many different locations of unique prints could you find to compare for him?

FE: There appeared to be three areas on only one of the guns that were touched, a pistol, that did not match the other men, so these were examined for Michael. These prints however were not as clear as the others, which made it more difficult to examine

18N PD: Okay and you compared all three areas to the prints you had taken off Michael Jennings

FE: Yes

19N PD: and it is your opinion that it is not clear whether they may or may not belong to him?

FE: Correct, the quality of these prints was weak and hard to examine. They could have had many features that greatly differed to those prints taken from Michael Jennings, but some that were very similar, so in this case I cannot decisively say whether or not they belonged to him

20N PD: I want to ask now about your level of confidence in your identification of the latent prints on the pistol to Michael Jennings' ink print. In this case, how certain are you that Michael Jennings did or did not leave the prints on any of those firearms taken into evidence?

FE: Like I said, I cannot conclude either way whether Michael Jennings left those prints on the pistol or not. It is not clear enough to decide.

Appendix I

Transcript from Bystander Interview

Bystander at party interview:

1 Police Detective (PD): Can you please state your full name and your occupation

Mikaela Short (MS): Mikaela Louise Short, and I work as a receptionist at Queen Street Physiotherapy

2 PD: Can I ask how old you are?

MS: I'm 22

3 PD: And are you under the influence of a drug or alcohol at present?

MS: No

4 PD: Now I'll start by asking whether you know any of these men: Mark Fischer, Steve Fischer, James Heindrich or Michael Jennings

MS: Yes I know all of them

5 PD: How do you know them?

MS: Michael Jennings and Mark Fischer were both in my year at high school. Steve is Mark's older brother, I think he was two years above us. And James Heindrich is a friend of theirs.

6 PD: So would you consider yourself friends with these men?

MS: Yeah I would say I'm friends with all of them, maybe not as close with Mark as the others though

7 PD: Are you aware that Mark Fischer has been arrested for multiple home robberies?

MS: Yeah, I saw a few friends posting about it online, then saw it on the news

8 PD: Can you remember the last time you would have seen Mark Fischer?

MS: I think it was at my friend Lachy's house. He was having a party

9 PD: Do you remember whether Michael Jennings was there?

MS: Yes, he was, I remember seeing him there and talking to him for a bit

10 PD: Do you recall whether you saw Michael Jennings interacting with Mark Fischer?

Incriminating

MS: Yeah, they were together for most of the party. They're quite good friends I think.

11I PD: Did you see them together alone or were they in a group with others?

MS: I remember them being alone for quite a while, but other people would come over and talk to them as well

12I PD: So, you think Michael Jennings and Mark Fischer are quite good friends and would see each other often?

MS: Yeah, I know they were close in high school and still see each other all the time. They always look like they're having fun together when I see them. So, I guess based on that I'd say they're good friends

Exonerating

MS: No I didn't see them together except to say hello maybe. I was with Michael for most of the night, and I know he isn't very close with Mark, so he wouldn't have been talking to him much

11E PD: So, you didn't see them together alone or in a group with others?

MS: No, they definitely wouldn't have been together alone, they might have briefly been in a group at the beginning when a few of us were talking

12E PD: So, you don't think Michael and Mark are good friends and they wouldn't see each other often?

MS: That's right. They were never close in high school, and I don't think they have much in common. I've never seen them hanging out together and they're both in different circles of

friends. I think the only time they might see each other are when everyone from school gets together.

Neutral

MS: I can't really remember. I wasn't hanging out with either of them much that night, so I can't say for sure whether they would have spoken to each other.

11N PD: So, you didn't see them together alone or in a group with others?

MS: I'm not sure, they might have been but like I said I don't really remember because I wasn't with them much that night

12N PD: Do you think Michael and Mark are good friends? Would they see each other often?

MS: I'm sort of friends with both of them but I really don't know much about their relationship with each other. We were all in the same year in high school, so they know each other from there. But as for how often they see each other I have no idea

Appendix J

ASD Information Card and Attention Checks

Autism Information

This person is on the autism spectrum

This card tells you what to expect when you meet a person who is autistic

Please turn over for more information

Name: Michael Jennings

Emergency contact details

Name of contact: Tel:

[redacted]

Autistic people may exhibit the following difficulties, beyond their control:

> Deficits in social interaction and communication
- Difficulties with exchanging conversation, not knowing boundaries, interrupting, lack of understanding of non-literal language

> Nonverbal communicative behaviours that are inappropriate or strange
- Avoidance or intense fixation of eye contact, lack of emotional expression or exaggerated expression, difficulty understanding and using appropriate gestures

> Difficulties in developing, maintaining and understanding relationships
- Social disinterest, may seem rude or angry due to lack of understanding other's thoughts and feelings, may be over compliant

> Stereotyped or repetitive behaviours
- Pacing, rocking, odd vocal tone or volume, repetitive speech
- Inflexible adherence to routines, or ritualised patterns of verbal or nonverbal behaviour - difficulty with changes and unfamiliar setting
- Preoccupation with specific interests (topics or objects)
- Over or under sensitivity to sound, touch, tastes, smells and light

Attention Check for ASD Information Card

1. Which of the following options did the information on the card you just read through indicate?
    a. The suspect has a diagnosis of autism spectrum disorder
    b. The suspect has a diagnosis of schizophrenia
    c. The suspect has a diagnosis of anxiety disorder

2. Choose one of the following options that represents a potential problem for someone with the disorder that was described on the card you just read:
    a. They dislike watching Disney movies
    b. They have deficits in social interaction and communication
    c. They always get bitten by flies