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REVIEW ARTICLE

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Conspiracy theories explained by a cheating detection mechanism

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Abstract

Research on conspiracy theories sometimes tends to pathologise this phenomenon with a focus on the impact of (sub) pathological predictors. However, socio-political factors also play a significant role in predicting belief in specific conspiracy theories. The aim of this article is to bridge these two perspectives through a unified cognitive mechanism. Based on an overlap between cheating and conspiracy concepts, we assume a cheating detection mechanism likely to underlie belief in conspiracy theories. Starting from the adaptive challenges of cheating detection, we explore the workings of this mechanism using signal detection theory and error management theory. The probability of cheating and decision bias according to the asymmetry of error costs in cheating detection could lead individuals to infer conspiracy theories. This functional mechanism not only explains the links between socio-political predictors and adherence to conspiracy theories but also helps us deduce alterations that may foster a stable inclination towards believing in conspiracy theories. These alterations, in turn, offer an explanation for the links between (sub)pathological predictors and conspiracy mentality. By integrating existing literature, our proposed model sheds light on the mechanisms underlying belief in conspiracy theories and presents new predictions to guide future research.

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1 | INTRODUCTION

"Conspiracy theories are stupid". Recently, with the inflation of conspiracy theories and the problems they caused in terms of public policies (Bogart & Thorburn, 2005; Jolley & Douglas, 2014; Romer & Jamieson, 2020), the media and even scientific discourse has been tempted to reduce the belief in conspiracy theories to a disorder by describing this phenomenon in terms of medical models (Basham, 2018; Sunstein & Vermeule, 2009). In this respect, an important part of research in psychology tends to reduce the belief in conspiracy theories to pathological dispositions (e.g., Sunstein & Vermeule, 2009; Swami & Coles, 2010). This pathological reductionism is problematic, since it hardly explains the incidence of these theories in the general population (Sunstein & Vermeule, 2009; van Prooijen & van Vugt, 2018) and thus reduces the predictive accuracy when studying this phenomenon.

Particularly, the temptation to reduce conspiracism to a phenomenon peculiar to conservatives because of supposed *paranoid style* (Hofstadter, 1966) is confronted with recent contradictory data (Enders et al., 2022; Enders & Smallpage, 2019). These recent researches show that individuals adhere to specific conspiracy theories according to socio-political predictors, for example, conspiracy theories that are congruent with their political affiliation (i.e., targeting the outgroup).

In other words, apart from pathological predictors, such as paranoid ideation generating a global conspiracy mentality (Bruder et al., 2013; Darwin et al., 2011), socio-political factors are also likely to determine the belief in specific conspiracy theories (e.g., Enders et al., 2022). In summary, two approaches are juxtaposed in the literature (e.g., Goreis & Voracek, 2019; Imhoff & Lamberty, 2018). On the one hand, an approach that focuses on the link between pathological or sub-pathological predictors and a general disposition to conspiracy theories (e.g., Bruder et al., 2013) and on the second hand, an approach that focuses on the link between socio-political predictors and the belief in specific conspiracy theories (e.g., Enders et al., 2022).

These two focuses should lead us to question whether socio-political and pathological predictors could be integrated within a common cognitive mechanism. Indeed, while a series of socio-political or pathological predictors have been identified in the literature, little work has focused on the underpinning mechanisms that explain their links with conspiracy theories (for a similar critique see, Pytlik et al., 2020). In other words, we feel it is necessary to examine cognitive mechanisms, how they work and their potential alterations, to account for the link between pathological predictors and a general mentality of belief in conspiracy theories, on the one hand, and the link between socio-political predictors and the belief in specific conspiracy theories, on the other.

To address this gap, we propose in this article to integrate pathological predictors and socio-political predictors within a unique cognitive mechanism. Among other things, in a functionalist view, we consider that the belief of specific conspiracy theories can constitute adaptive outputs depending on the information available and a mechanism that processes the information correctly. From the description of the correct functioning of the mechanism, we can deduce alterations that could potentially give rise to a general non-adaptive mentality of belief in conspiracy theories.

More fundamentally, with a focus on cognitive mechanisms, the proposed model fits with the existing literature but also offers new mediation hypotheses to investigate belief in conspiracy theories. Finally, we believe that by focusing on cognitive mechanisms and describing their normal functioning and inferring potential alterations, the present theoretical work could open a way to unify a set of determinants of conspiracy theories (socio-political and pathological) in a parsimonious proposal, that is, minimising the number of parameters without losing predictive accuracy.

From a conceptual overlap between conspiracy and cheating concepts, we assume that a cognitive cheating detection mechanism underlies conspiracy inferences. This mechanism has evolved to detect deception but served

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now here for more socially developed purposes. For developing this model, we rely on the parameters suggested by error management theory (EMT; Haselton & Buss, 2000; Haselton & Nettle, 2006), which is an adaptationist extension of signal detection theory (SDT; Green & Swets, 1966). We argue that certain social cues are likely to modify the estimation of cheating and produce conspiracy inferences, either by modulating the probability of the signal (i.e., cheating) or by modulating the decision bias. In this regard, a decision bias strongly biassed towards false positives due to cues from the social environment is likely to generate more conspiracy theories than it really exists, resulting in an adherence to false conspiracy theories. From the description of a functional mechanism, processing information correctly and likely to give incorrect outputs (i.e., false conspiracy theories), we deduce potential alterations likely to generate a dysfunctional conspiracy mentality (Bruder et al., 2013).

2 | CHEATING DETECTION TO EXPLAIN CONSPIRACY THEORIES

A conspiracy is defined as an action that is (a) intentional and carried out by a group (Bale, 2007; Lantian et al., 2016; Swami et al., 2010), (b) malicious and in the interests of the conspirators in opposition to the interests of other individuals or the general interest (Bale, 2007; Brotherton et al., 2013; Hofstadter, 1966; Popper, 1966, p. 296; Zonis & Joseph, 1994), (c) dissimulated (Imhoff & Lamberty, 2018; Lantian et al., 2016; Swami et al., 2010) and associated with deception (Sunstein & Vermeule, 2009; Wood et al., 2012). These attributes overlap with a more general concept, namely *cheating*.

Cheating is also defined as an intentional behaviour (Cosmides et al., 2010; Cosmides & Tooby, 2005) that is unfair, since it generates an undue benefit to the cheater at the expense of the fitness of the agent being cheated (Ghoul et al., 2013; Riehl & Frederickson, 2016; Tooby & Cosmides, 1992). Like conspiracy, cheating is related to deception (Dye & Solomon, 2020; Ghoul et al., 2013; McNally & Jackson, 2013). However, while conspiracy relates to complex social beliefs, cheating detection revolves around a more basic mechanism at a lower level. This distinction thus permits us to rely on simpler mechanisms involved in detecting cheating and deceptive behaviour to grasp how these cognitive processes might scale up to support complex social beliefs and group dynamics associated with conspiracy.

Based on this overlap, we propose to redefine conspiracy as coordinated action of several cheaters. In line with this redefinition, in order for individuals to form conspiracy theories, it is logically necessary for them to identify cheaters. This identification could appeal to an adaptive cheating detection mechanism that has to process inputs under uncertainty. The detection of cheating has already been mentioned as a possible explanation for conspiracy theories (Bost & Prunier, 2013), but has not been the subject of a comprehensive proposal. In our perspective, this new definition of conspiracy permits to integrate the existing literature under a common mechanism and provide new insights, that altogether contributes to a comprehensive model of conspiracy theories. Indeed, while this redefinition of conspiracy may seem like a semantic trick, the link with the concept of cheating opens up the possibility of understanding a broader, evolved mechanism for detecting cheating, which underlies the inference of conspiracy theories. This conceptual connection enables us to delve into the adaptive challenges of detecting cheating and, consequently, gain insights into the normal functioning of the mechanism that potentially generates belief in conspiracy theories. By exploring the normal functioning involved in cheating detection, we can then identify potential alterations that contribute to the conspiracy mentality. Through this reasoning, resulting from the initial association between cheating and conspiracy, we propose new mediation hypotheses centred on the mechanism, thus explaining links between various factors identified in existing literature and belief in conspiracy theories.

In sum, we suggest that a general cheating detection mechanism leads to the detection of cheaters likely to underpin conspiracist inferences. To illustrate our proposal, imagine the following situation: People learned that a leader is being accused of a crime (e.g., two presidential candidates, Donald Trump or Dominique Strauss-Kahn). In this situation, individuals have to decide under uncertainty whether the accuser is a cheater or not (e.g., respectively, a former FBI director in the Russiagate in 2016; a chambermaid in the DSK affair in 2011). Taking into account both

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the probability of cheating according to the information available and their decision bias modulated, for example, by their political affiliation, individuals who detect the accuser as a cheater are then likely thereafter to generate conspiracy theories (e.g., the spygate theory claiming that the Obama administration had spied on the Trump campaign; a collusion between the Accord group, owner of the NYC Sofitel, and the French president-candidate Nicolas Sarkozy, to bring down DSK).

2.1 | Cheating detection under uncertainty

Cheating detection is intrinsically linked to the evolution of cooperative behaviours (Tooby & Cosmides, 1992; Trivers, 1971). In social exchanges, cheating offers an a priori advantage over cooperation since the cheater benefits from the fruits of cooperation without bearing its cost (e.g., Ghoul et al., 2013; Trivers, 1971). To resolve the apparent paradox between the advantage of cheating over cooperation and the stabilisation of cooperative behaviours, evolutionary theory has suggested the selection of mechanisms of cheating detection. In other words, if cheating provides greater benefits compared to cooperative behaviour, while cooperation has emerged and demonstrates evolutionary stability, it follows that individuals must have developed mechanisms to detect and exclude unfair individuals from social interactions (Tooby & Cosmides, 1992).

Studies focusing on cheating detection mainly investigate the reasoning mechanism underlying understanding the violation of social contracts (Cosmides et al., 2010; Cosmides & Tooby, 2005). Other investigations have focused on memorisation of cheater's faces (Bell & Buchner, 2012; Mealey et al., 1996; Schaper et al., 2021), their fixation time (Chiappe et al., 2004), or their detection based on facial features (Verplaetse et al., 2007). To adopt a higher level of generality, cheating detection has to be described in terms of general models, such as signal detection theory (Green & Swets, 1966) or error management theory (EMT; Haselton & Buss, 2000; Haselton et al., 2016).

EMT provides a general framework to explain cognitive and behavioural biases (Haselton & Nettle, 2006). In this vein, van Prooijen and van Vugt (2018) suggested that EMT is a relevant theory for explaining the belief in conspiracy theories. Their proposal focuses on dangerous coalition detection but without specific focus on cheating detection. Indeed, the association of conspiracy theories with the detection of dangerous coalitions presents a challenge in identifying the cues that enable such detection. In other words, the next question is to identify the relevant cues making possible the evaluation of the coalition as profitable or dangerous. Among other things, the risk of cheating, given its intrinsic link to cooperative behaviour, is central to the formation of coalitions (De Duco, 2000; Tooby et al., 2006) and therefore could serve as a crucial cue indicating a dangerous coalition. In sum, the belief in a conspiracy or the inference that a coalition is potentially dangerous could be based on a cheating detection mechanism in the first instance.

Facing uncertainty, cheating detection must incorporate two elements to make a decision using EMT (Green & Swets, 1966; Haselton & Nettle, 2006). Applied to the current model (see Figure 1), the first element is the probability of cheating, compared to the probability of the absence of cheating. The estimated probability of the event depends on the relevant cheating cues captured by the individual. In the following sections, we suggest relevant cues for judg-ing the probability of the occurrence of cheating, linking these cues to the existing literature on conspiracy theories.



FIGURE 1 Functional Cheating Detection Mechanism based on EMT.

The second necessary element in the detection of cheating is the decision bias according to the asymmetry of the adaptive costs between the two possible detection errors: false positive for the detection of a non-existent cheat and false negative for the non-detection of an existing cheat. Indeed, for EMT, individuals consider the costs of a false positive and a false negative, in order to bias their decision toward the least costly error, and thus avoiding the most costly error. If the cost of a false positive exceeds the cost of a false negative, then individuals are biassed towards false negatives and thus underweight the probability of cheating (i.e., conservative criterion). Consequently, they tend to perceive less conspiracy than actually. Conversely, if the cost of a false negative exceeds the cost of a false positive, then individuals are biassed towards the latter and thus overweight the probability of cheating (i.e., liberal criterion). As a result, they will perceive more conspiracy than there is for real.

2.2 | Decision bias in cheating detection

In general, individuals facing a potential danger are biassed toward false positives in order to avoid false negatives that could be deadly (Haselton & Nettle, 2006). Because cheating presents a substantial danger (e.g., Tooby & Cosmides, 1992), individuals should be particularly vigilant towards them (Mercier, 2013; Sperber et al., 2010). However, while there is a cost to miss an actual cheater, there also exists a cost for false positives (i.e., wrongly detect non-existent cheating). Indeed, erroneous cheater detection can generate serious consequences for the detectors, such as punishment (e.g., Raihani & Bell, 2019; Raihani et al., 2012), defection of cooperating partners (e.g., McCullough et al., 2013) or even exclusion (e.g., Robertson et al., 2014). In sum, the cost of errors is likely to vary depending on several parameters. For example, concluding in the existence of a cheater in the one's family would have a higher cost than if it comes from an outgroup. In the latter case, a false positive would have more deleterious consequences (i.e., exclusion; loss of cooperation) and may exceed the cost of a false negative. This could lead the individual to under-detect cheating, and finally turn a blind eye.

Because of this variation of the costs, we assume that cheating detection mechanisms have relative plasticity. It thus will adjust depending on two main parameters that are the importance of the social exchanges and the cost of the cheat. When the importance of the social exchanges decrease, the cost of a false positive decreases. For instance, the risk of exclusion from cooperation with a subsidiary group is less consequential for the individual than with a central group. Conversely, when the importance of social exchanges increases, the cost of a false positive increases as well. Respectively, this second situation would then generate under-detection of cheating and thus less adherence to conspiracy theories.

In the conspiracy literature, individuals show a tendency to embrace conspiracy theories that target the outgroup (Enders et al., 2022; Enders & Smallpage, 2019). The variations in the cost asymmetry between false positive and false negative for cheating detection, based on the level of importance of social exchange, provide a comprehensive explanation that encompasses these empirical findings.

Similarly, the asymmetry of costs should vary according to the importance of the consequences of a potential cheating. This would explain why, for instance, conspiracy theories focus on particular sensitive stimuli such as vaccination. As vaccination is a prophylactic device for healthy people, it can be perceived as a risky behaviour (e.g., Dubé et al., 2021) and thus likely to change the cost asymmetry. One remarkable thing about anti-vaccination conspiracy theories on RNA vaccines is that said therapies were already used for the treatment of serious illness (e.g., Bouvenot, 2022), but conspiracy theories concerning the medical use of RNA only appear recently with vaccination (e.g., Hakim, 2021). We believe the asymmetry of costs can explain this raise. Indeed, detecting non-existent cheating (false positive) that would result in refusing an RNA therapy in an individual with transthyretin amyloidosis (a serious and fatal disease for which RNA therapy is available; Bouvenot, 2022) can lead to death. Alternatively, for a young and healthy individual refusing a vaccine to prevent COVID-19, detecting non-existent cheating (false positive) would have a quite lower direct consequences. More generally, cost asymmetry can explain why institutional promotions of behaviours likely to generate a perception of risk (e.g., vaccination) or significant utility losses for the individual (e.g., pro-environmental behaviours) are likely to generate more conspiracy theories.

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2.3 | Direct and indirect cues to estimate cheating probability

Because decision-making systematically emerges in an uncertain environment, individuals must be able to differentiate the signal from noise. In particular, the deception behaviours characteristic of cheaters (Dye & Solomon, 2020; Ghoul et al., 2013; McNally & Jackson, 2013), and so well as conspirators' (Sunstein & Vermeule, 2009; Wood et al., 2012), induces a high level of uncertainty. Deception is the main tool of cheaters, who strive to win the evolutionary arms race with others' skill at detecting cheating (Dawkins & Krebs, 1979; Dye & Solomon, 2020). Because individuals can detect violations of social contracts (Tooby & Cosmides, 1992), cheaters developed dissimulation behaviours (Dye & Solomon, 2020; McNally & Jackson, 2013; Nakamaru & Kawata, 2004). Without the capacity to conceal cheating, cheating behaviour would have simply been eradicated during evolution (e.g., Arminjon et al., 2015). Cheating detection would thus have generated a selection pressure to select effective cheating behaviours (McNally & Jackson, 2013). In the arms race, detectors are in turn driven to generate counter-countermeasures involving a sensitivity to indirect cues suggesting deception or cheating based on recurrent associations between stimuli and cheating behaviour (e.g., Arminjon et al., 2015).

In sum, since the evolutionary arms race generates deception among cheaters—and thus a high uncertainty for detection—this should push the cheating detection mechanism to incorporate relevant indirect cues to estimate the probability of cheating in addition to direct cues of cheating. Direct cues suggesting the occurrence of cheating include the existence of past cheating or more broadly to the frequency of cheating behaviour in the environment. Conversely, a relevant indirect cue to cheating is the recurrent association between a neutral stimulus and a cheating behaviour that leads individuals to judge the likelihood of cheating to be greater in the presence of this conditional stimulus. Together, these cues should allow detectors to estimate the probability of cheating and increase or decrease inference of conspiracy theories.

Direct Cue: Past Cheating. An environment with a high frequency of cheating should lead individuals to anticipate this danger during social exchange by increasing the probability of detecting cheating. Evidence indicating the existence of corruption are good cues regarding the level of cheating in the environment (Einstein & Glick, 2013). Recent research has shown a significant link between the level of corruption and the belief in conspiracy theories (Alper, 2021; Cordonier et al., 2021). In a more indirect way, corruption is considered as one of the main factors in distrust towards institutions (Anderson & Tverdova, 2003; Catterberg & Moreno, 2006; Chang & Chu, 2006). It has also been repeatedly shown that the belief in conspiracy theories is related to low trust in institutions (Abalakina-Paap et al., 1999; van Prooijen & Acker, 2015). We might therefore consider that a high level of corruption increases the perceived probability of cheating occurring, reducing institutional trust and generating conspiracy inferences particularly if the individual is biassed towards false positives.

We assume that this effect can be understood through the bias we described. Indeed, if an individual is rather oriented towards false positives to avoid false negatives, an increase in corruption or an isolated instance of corruption should result in an increase in the perceived frequency of corruption exceeding the actual increase in corruption. This would explain why an isolated instance of corruption is likely to generate a generalised mistrust of the whole institution (Bowler & Karp, 2004; Chanley et al., 2000; Solé-Ollé & Sorribas-Navarro., 2014). In this way, this can also explain that an individual who is biassed towards false positives (vs. false negatives) could infer a conspiracy theory from an isolated case of corruption.

Indirect Cues: Power and Dominance. Power asymmetry between individuals and alleged conspirators is considered a factor predicting the belief in conspiracy theories (e.g., Imhoff & Bruder, 2014; van Prooijen & van Lange, 2014). This consideration has been so to the point of being incorporated into the definition of conspiracism for some (e.g., Douglas et al., 2019). It is possible to account for this element via the cheating detection mechanism. Indeed, it has been observed that individuals seeking social power are more likely to engage in dishonest behaviour (de Cremer & van Dijk, 2005; Kim & Guinote, 2021; Piff et al., 2012; Stamkou & van Kleef, 2014). We assume that because of this recurrent association, the dominance trait could serve as an indirect cue increasing the probability of occurrence of cheating, and consequently, this would explain why conspiracy theories are often directed at individuals or groups with high social power (Imhoff et al., 2018; Imhoff & Lamberty, 2018).

Indirect Cues: Competition and Entitativity. Indirect cues could also come from intergroup relationships and the structure of groups. In intergroup relationships, the probability of occurrence of cheating is likely to be determined by ingroup favouritism. Actually, it has been shown that an individual can deceive an outgroup member to favour the ingroup (Cadsby et al., 2016; Michailidou & Rotondi, 2019). On the detector side, if the cheating is related to ingroup favouritism, then the probability of detecting cheating during social exchange with an outgroup should be greater than during an exchange with the ingroup (e.g., Anderson & Tverdova, 2003; Claassen & Ensley, 2016).

Beyond this general aspect, we consider that the levels of intergroup conflict and competition are likely to moderate this probability. The electoral context is a good example of situations of high competition provoking conspiracy theories (Edelson et al., 2017). For example, the particularly sharp antagonism between the Democratic and Republican partisans in USA elections gave rise to the emergence of conspiracy theories on both sides, whether these beliefs were ex post facto justified (i.e., Russian interference in 2016; e.g., Albertson & Guiler, 2020) or not (i.e., mail-in ballot rigging in 2020; e.g., Enders et al., 2022). As with the tendency to perceive more cheating within the outgroup, this tendency to perceive more cheating in situations of conflict or competition during social exchange may also appear as an adaptive response, as both behavioural economics and social psychology shown an association between the level of competition and dishonest behaviours (Anderman & Murdock, 2007; Kulik et al., 2008; Pierce et al., 2013; Schwieren & Weichselbaumer, 2010; Shleifer, 2004; Smith et al., 1972). Here, the recurrent association between the context of competition and cheating (e.g., Pierce et al., 2013; Sherif & Sherif, 1965) can serve as a cue increasing the probability of presuming the occurrence of cheating in a highly competitive context.

Furthermore, the high level of conflict and discrimination by dominant groups towards marginalised groups could explain why these latter groups tend to perceive more conspiracy (Crocker et al., 1999; Simmons & Parsons, 2005). In this sense, the probability of occurrence of cheating from within an outgroup should logically be greater for marginalised groups, leading them to adjust the probability of the event by considering that they are more likely to be victims of cheating. For example, repeated abuse and deception in the use of African American populations in clinical trials throughout history (Ball et al., 2013; Watkins, 1986) is likely to generate greater anticipation of cheating from the outgroup and lead to conspiracy theory inferences. Regardless of the objective level of threat or competition between groups, inter-individual differences in sensitivity to threat (Bertin et al., 2022; Cichocka, 2016) are likely to lead individuals to perceive a greater probability of cheating.

Finally, the entitativity level of an outgroup is another factor associated with the development of conspiracy theories (Grzesiak-Feldman & Suszek, 2008; Kofta & Sedek, 2005). Once more, we assume this link can be explained by the cheating detection mechanism. Indeed, a high level of entitativity increases ingroup favouritism bias (Effron & Knowles, 2015). Newheiser et al. (2012) showed that strongly entitative groups are perceived as less moral, which could be associated with a higher probability of the occurrence of cheating. Thus, building on the same reasoning as before, this would result in a higher probability of the occurrence of cheating facing a group perceived as strongly entitative than facing a group perceived as weakly entitative.

3 | CONSPIRACY MENTALITY AND PATHOLOGICAL PREDICTORS

In the previous section, we described a cheating detection mechanism that explains links between socio-political predictors and the belief in specific conspiracy theories. In this section, we suggest that alterations of this mechanism are likely to generate a conspiracy mentality, and thus is likely to explain the link between this trait and pathological predictors such as paranoid ideation or hypersensitivity to agency (Brotherton & French, 2015; Bruder et al., 2013; Darwin et al., 2011). In other words, we assume the description of the functioning of the cognitive mechanism of cheating detection permits to integrate the two focuses in the literature of conspiracy theories beliefs (Goreis & Voracek, 2019; Imhoff & Lamberty, 2018; Sunstein & Vermeule, 2009).

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FIGURE 2 Dysfunctional cheating detection mechanism.

In order to be adaptive, a cheating detection mechanism should incorporate direct and indirect cues regarding cheating but also a criterion to bias the response to avoid the most costly error. A functional mechanism can be defined as one that correctly processes the available information to effectively address the adaptive challenges it has been programmed for, without necessarily minimising the amount of error in the output (see also, McKay & Dennett, 2009, pp. 494–495). According to this functionalist approach, the cheating detection mechanism is thus capable of correctly processing the available cues and generating an incorrect output, such as false conspiracy beliefs to avoid the most costly error.

Conversely, a dysfunctional mechanism is a mechanism that incorrectly processes the available information. From the description of a functional mechanism according to the adaptive challenges of cheating detection that we have outlined, we can now deduce potential alterations. A cheating detection mechanism is likely to be dysfunctional when it handles irrelevant inputs or when it is insensitive to changes in cost asymmetry (see Figure 2). Among other things, these configurations are likely to generate a stable disposition close to a so-called conspiracy mentality, as well as to explain links with factors such as paranoid ideation (Bruder et al., 2013).

The link between paranoia and a conspiracy mentality is well established (Bruder et al., 2013; Darwin et al., 2011; Goreis & Voracek, 2019; Grzesiak-Feldman & Ejsmont, 2008), but the underlying mechanisms are still poorly explored (Pytlik et al., 2020). The cheating detection mechanism hypothesis offers new insights into these processes. Actually, if researchers have already proposed that an abnormal perception of cheating could be linked to paranoia (Brüne & Bodenstein, 2005; Brüne & Brüne-Cohrs, 2006; Schlager, 1995), we here assume that the existing link between conspiracism and paranoid ideation result from alterations in the cheating detection mechanism.

First, this alteration could be linked to the alteration in the integration of change in the cost asymmetry, and thus coming from a lack of plasticity of the cheating detection mechanism. In other words and for example, the bias does not modulate depending on the change in cost asymmetry stemming from the importance of the social exchange between the target and the individual (e.g., cooperation level). We assume that paranoid individuals detect cheaters equally in contexts where the importance of the social exchange is high, such as family or friendships contexts (increased cost of false positives) as in contexts where this importance is low (decreased cost of false positives). In sum, with a constant probability of occurrence of cheating in the environment, one would expect that an individual with a high paranoid ideation score would not moderate their perception of the probability of cheating as a function of the cost of false positives.

Assuming that a paranoid individual exhibits a bias that is strongly oriented toward false positives for cheating detection and insensitive to variations in cost asymmetry, also implies that this alteration generates widespread distrust, inability to cooperate even with ingroup members, and belief in false conspiracy theories. This lack of plasticity would also explain the maladaptation of paranoid individuals in social exchange, such as difficulty in developing social relationships (Fett et al., 2016; Gromann et al., 2013; Phalen et al., 2017) or cooperation (Brüne & Brüne-Cohrs, 2006; Ellett et al., 2013).

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Second, the alteration can also take place at the level of the inputs handled by the mechanism. Indeed, in order to be adaptive, the cheating detection mechanism had to process relevant cues of cheating (direct or indirect cues) in order to assess the likelihood of cheating. Conversely, individuals with high levels of paranoid ideation might integrate irrelevant cues as cheating cues, increasing probability of occurrence of cheating. The incorporation of incorrect inputs in the detection of cheating could also explain the link between sensitivity to agency and the belief in conspiracy theories (Brotherton & French, 2015; Douglas et al., 2016). Indeed, social exchange theory proposes that cheating detection mechanisms are particularly sensitive to the detection of intentionality in order to distinguish between an accidental and an intentional violation of social contracts (Cosmides et al., 2010; Cosmides & Tooby, 2005). An abnormal sensitivity to agency could lead to the perception of accidental violations of social contracts as intentional violations. Incorporating these irrelevant cues (e.g., accidental violations) could have the effect of increasing the probability of occurrence of cheating in the environment. In sum, an alteration of the cheating detection mechanism in tracking the change in cost asymmetry and in incorporating irrelevant cues to assess the likelihood of the event could be the source of certain paranoid beliefs, such as conspiracy theories.

4 | RESEARCH DIRECTIONS

Starting from the limitations of pathologising conspiracism, we attempted in this article to propose a cognitive mechanism that integrates the links between socio-political predictors and the belief in specific conspiracy theories, as well as links pathological predictors to a conspiracy mentality. From the adaptive challenges of cheating detection, we deduced how a cheating detection mechanism could give rise to conspiracy theories by processing information correctly. Based on this normal processing, we derived potential alterations likely to generate a stable and general inclination to believe in conspiracy theories (i.e., mentality conspiracy). This proposal of unification does not only assume a common mechanism for the existing data on the occurrence of conspiracy belief, but also suggests new mediation hypotheses concerning the links between identified inputs in the literature and conspiracy theories.

4.1 | Functional cheating detection mechanism mediates links between socio-political predictors and specific conspiracy theories

First, the decision bias of the cheating detection mechanism is expected to mediate the link between target type (ingroup vs. outgroup) and the belief in specific conspiracy theories. In other words, we expect an ingroup target to generate a cheating detection bias more conservative (i.e., more oriented towards false negatives) in a cheaters detection task. Moreover, the more conservative the bias, the more individuals should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the ingroup. Conversely, when the detection target belongs to the outgroup, we expect a more liberal cheating detection task targeting the outgroup, the more individuals should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the ingroup. Conversely, when the detection target belongs to the outgroup, we expect a more liberal cheating detection task targeting the outgroup, the more individuals should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the outgroup and the less they should adhere to conspiracy theories targeting the ingroup. According to our theoretical proposal, this modulation of the decision bias according to the belonging of the target (ingroup vs. outgroup) should be a function of a change in cost asymmetry. In this respect, we expect that when the target belongs to the ingroup, the cost of a false positive exceeds the cost of a false negative in cheating detection, generating a more conservative detection bias. Conversely, when the target belongs to the outgroup, we predict that the cost of a false negative exceeds the cost of a false positive, this time generating a more liberal bias.

Moreover, since cheating and cooperation are intimately linked, we consider that the asymmetry of costs could vary depending on the level of cooperation between the individual and the target of the detection. As such, we hypothesise that in a cooperation game including two groups, the increase in the level of cooperation (input) at each

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social exchange between members of the two groups should modify the asymmetry of costs, and therefore the bias for detection (mediator) reducing the adherence to a conspiracy theory targeting the outgroup (output).

Beyond group belonging, the model predicts that the described cheating detection mechanism mediates the link between the level of inter-group threat or competition and the belief in specific conspiracy theories. As such, we expect the effect of a threatening versus non-threatening context (e.g., electoral competition) on the belief in specific outgroup conspiracy theories to be mediated by a modulation of the cheating detection bias on a cheaters detection task. Among other things, the more threatening or competitive the intergroup context (input), the more individuals should exhibit a liberal cheating detection bias for outgroup targets (mediator) leading to more conspiracy theories (output).

Finally, the model also suggests that the mechanism accounts for the link between individual and isolated acts of cheating (e.g., corruption) and conspiracy theories that have recently been established in the literature (e.g., Alper, 2021). In this regard, we predict that the link between the level or salience of corruption and the belief in conspiracy theories is mediated by the perceived probability of cheating. In addition, we also expect mediation to be moderated by the cheating detection bias. Among other things, the more individuals identify with the groups to which the suspected cheating targets belong, the more they should have a conservative bias and the more they should minimise the probability of corruption. For example, in the case of corruption within the government, the more individuals identify with the government, the more they should have a conservative cheating detection bias for government targets and the more they should reduce the probability of corruption (perceived corruption) in relation to the actual level of corruption. Conversely, the more individuals identify with parties opposed to the government, the more they should exhibit a liberal bias towards government targets and the more they should increase the probability of corruption (perceived corruption) relative to the actual level of corruption.

4.2 | Dysfunctional cheating detection mechanism mediates links between (sub) pathological predictors and conspiracy mentality

From the description of a functional cheating detection mechanism, we deduced possible alterations likely to generate a general tendency to believe in conspiracy theories (e.g., Bruder et al., 2013). These inferences of possible alterations offer new empirical predictions. Derived from the model, we first expect that a strongly liberal bias in cheating detection to be related to a higher level of conspiracy mentality. Second, we expect the link between paranoid ideation and conspiracy mentality to be mediated by the cheating detection bias in a cheaters detection task. Among other things, the higher the level of paranoid ideation, the more liberal the bias should be and the higher the level of conspiracy mentality should be.

Concerning the differentiation between normal and altered functioning, we predict that an alteration comes from an incorrect updating of the detection bias. Among other things, we predict that, given a constant level of the belief in conspiracy theories, an individual with a liberal cheating detection bias that does not updates facing changes in cost asymmetry should exhibit a higher level of paranoid ideation than an individual whose bias updates facing changes in cost asymmetry. If this prediction is verified, the identification of an alteration in the actualisation of the cheating detection bias could help to empirically describe two profiles of conspiracists. Still on the subject of differences between normal and impaired functioning, we also considered that impaired functioning could result from the integration of incorrect inputs. This prediction can be linked to research on hypersensitivity to agency (e.g., Brotherton & French, 2015). Among other things, we predict that the more hypersensitive individuals are to agency, the more they should interpret accidental violation of social contracts as intentional violations. On the other hand, the more they identify accidental violations as intentional violations, the more they should perceive a high level of cheating, leading to a higher level of conspiracy mentality.

More broadly, identifying the alterations that give rise to pathological beliefs could serve as a starting point for intervention research. For instance, for individuals with high levels of paranoid ideation, protocols enhancing the plasticity of the decision bias could contribute to reducing the tendency to over-detect threat.

5 | CONCLUSION

In summary, the paper advocates for the adoption of an integrative viewpoint centred on cognitive mechanisms as a powerful means to integrate socio-political and pathological focuses. By amalgamating diverse perspectives, this approach enables a more nuanced and comprehensive comprehension of conspiracy beliefs. The proposed integration opens up possibilities for exploring new hypotheses, inviting in-depth examination. Ultimately, we believe this integrative approach has the potential to unlock novel avenues of knowledge and drive meaningful advancements in the field.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest that could be interpreted as influencing this manuscript.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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