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## LETTER TO THE EDITOR

# Commentary on: Dror IE, Melinek J, Arden JL, Kukucka J, Hawkins S, Carter J, et al. Cognitive bias in forensic pathology decisions. *J Forensic Sci.* <https://doi.org/10.1111/1556-4029.14697>. Epub 2021 Feb 20.

See Original Dror et al Article [here](#)

See JFS Editor-in-Chief Preface [here](#)

See Authors' Response to Obenson Commentary on [here](#)

Editor,

Cognitive bias can be defined as “a systematic error in thinking that occurs when people are processing and interpreting information in the world around them and affects the decisions and judgments that they make” [1]. A manner of death (MOD) is an opinion based on a distillation of multiple sources of data including the events surrounding the death of and the interpretation of injuries in a decedent. Since these are opinions, the context within which they are codified is subject to the lived experiences and training of the individuals responsible for their formulation. Whether consciously or subconsciously, it is very likely that some of these decisions will be influenced by extraneous data or data inadvertently weighted to provide an outcome that is not entirely objective. In other words, the originators would have exhibited “cognitive bias.” It is in this landscape that the article by Dror et al [2] will revive discussions about the legitimacy of some opinions crafted by forensic pathologists (FPs). That cognitive bias exists in the diagnoses and treatment of living patients is well known and documented [3]. Patients face discrimination from some physicians on the basis of their race, weight, and gender [4–6]. Black neonates have better outcomes in the intensive care unit when treated by Black doctors [7]. Black women have a higher maternal mortality than White women even when controlled for socioeconomic class [8]. LGBTQ+patients still face disparities in care because many physicians lack the appropriate cultural competence required to address their unique concerns [9]. Indigenous patients report less favorable interactions with health-care providers because of their racial identity [10], are less likely to receive renal transplants even when they need them [11], or have worse colon cancer-specific survival times [12]. Oliver et al remind us that the practice of forensic pathology is the practice of medicine [13]; therefore, we should start with the same assumptions about the existence of cognitive bias in FPs with the same logic—if there is bias toward the living, bias should be expected to be directed favorably or unfavorably toward the dead, until otherwise proven.

Expert FPs tend to agree on the MOD regardless of the victim's race, where there is ballistic or sharp force trauma. In these scenarios, injury interpretation is generally less subjective. However, in infants and children, disagreement is more likely among FPs and for that matter child abuse pediatricians, when the decedent has suffered blunt force injuries. This is due to variety of weapons and surfaces that could have been employed to cause injury; the need to determine the ages of various injuries and ascertain their severity; the requirement to exclude underlying lethal native disease or anomaly; and the number of suspects that could be implicated in a child's death. Based on their analysis of the Nevada arm of their study, Dror et al. are unable to explain if it is in these types of cases that (racial) cognitive bias apparently manifested [2].

Discussions on race, racial biases, and racial disparities are very sensitive in the West in general and the United States in particular, especially in the wake of the George Floyd killing and the resultant national and international protests. They are generally avoided, perhaps to our collective detriment. Added to the fact that MOD in blunt force trauma cases can be problematic, the finding of apparent (racial) cognitive bias in homicide MOD determination in Nevada [1] will be the source of vigorous debate in the US forensic pathology community. The community is predominantly White with a significant female and visible minority representation. There is no reason to believe that one group possesses more cognitive biases than the other nor can anyone be certain that they all share the same set of biases or act on their biases in the same way. However, the fact remains that Black Americans are disproportionately represented in homicide statistics.

US statistics (2018 to 2019) indicate that Black children are 2.5 times more likely to be victims of homicide than white children of the same age [14]. This may have less to do with race than with socioeconomic class, and the fact that a substantial proportion of the homicides are due to gunshot wounds. It is also true that boyfriends (by implication non biologic relatives) are more likely to be involved in the deaths of children than grandmothers (by implication biologic relatives) [15]. All of which mean that FP must be vigilant to and protect against confirmation and perhaps status quo biases (whether it be race or nature of the caretaker relationship).



The second arm of the study by Dror et al. [2] provided 133 FPs with clinical vignettes in which they were asked to determine MOD. While the results suggested that some FPs demonstrated cognitive bias in their decision making, it could not clearly identify the source of the bias as either being due to decedents' race or the nature of the caretaker's relationship to the decedent. Had the study been designed to apply the same set of variables to both Black and White decedents with their race as the sole constant, it may have reached different conclusions. Notwithstanding, it is likely that many participants would have been clued into the objective of the study and modified their responses accordingly (Hawthorne effect) [16]. Indeed, experiments in which clinicians were asked to make treatment decisions based on hypothetical clinical vignettes seem to show no difference in patient treatment based on race even if the sample included participants known to have an implicit bias toward White patients [17]. Therefore, despite the limitations of retrospective reviews, a more rigorous analysis of past behavior at which the Nevada arm of study by Dror et al. hinted might have been a more effective method to prove that some FPs demonstrate (racial) cognitive bias in their decision making [2]. One can often predict the future based on past behavior ("show me what you did, rather than tell me what you say you would do").

Can anything be done to reduce the risk of cognitive bias impacting MOD determination? Possibly. However, admitting to it is an important first step. FPs generally agree that all factors must be taken into consideration in the determination of a MOD even if on the surface they might appear irrelevant. Adding to the complexity, what may be deemed inapplicable and useless in case "A" by based on the bias of FP "X" could be deemed applicable based on the bias (or lack of it) exercised by FP "Y." To address this, best quality improvement practices could see the incorporation of some sort of blind review of selected reports preferably on a national scale or even through an interstate or regional compact. However, the operation of such a system is not immediately feasible given workloads, the myriad state rules governing medical licensure and the risks of added work from having to respond to out of state subpoenas. Even more problematic is that the standardized training for which the US is well known, and generally similar practice and experience among its practitioners may subject the reviewers to the same set of biases. A more objective system could see FPs borrowing and adapting certain scoring models from surgical pathology best illustrated by their use of the Allred score for hormone receptor studies or mitotic counts in grading astrocytomas or sarcomas. In a framework designed to accommodate MOD certification, the FP would assign a total numerical score to each cluster of factors typically deemed determinative to the MOD with an agreed maximum score. For instance, one cluster could include basic demographics, the next scene findings and in subsequent order radiologic, injury, toxicologic, histologic, and "other" findings. The demographic cluster could include scores for the decedents' race, and the race and sex of the caretaker. Any factor, race included could override the maximum score for that cluster if the FP believed it to be especially important in determining the MOD. The challenge to wide implementation is that such a protocol

would need to be designed, tested, and proven reliable, reproducible, and easy to use for it to be sanctioned by the larger forensic pathology community. However, even if it was only developed for use as an internal quality control document in selected cases, such an exercise should at the very minimum alert the FP to a particular cognitive bias, race included. As Croskerry noted, it is important that bias in medicine is acknowledged. Only then can steps be taken to actively eliminate the bias [3].

In conclusion, research on living patients indicate that some FPs have almost certainly exercised cognitive bias in their decision making. Given the fact that hundreds of thousands of autopsies have been performed since the American Board of Pathology recognized forensic pathology as a distinct subspecialty in 1959, to declare unreservedly that cognitive bias has never played any role in manner of death determination by any forensic pathologist is pure fantasy. The reluctance to admit to the even the possibility of bias may lie in the fear of having cases relitigated or perhaps the loss of peer standing and respect. However, how does this serve the interests of the death investigation systems that we have committed ourselves to protect? To move forward, we must be able to admit that there is the potential for bias to interfere with an objective manner of death determination. To demonstrate how these biases have impacted MOD determinations is fertile ground for additional well-designed research [18,19]. Best quality improvement activities would require that where this is lacking, we develop and deploy mechanisms to mitigate the effects of those biases if we are to maintain our position as neutral witnesses to the court.

## DISCLAIMER

The views expressed in the submitted article are mine alone and do not represent those of my employer or any professional organization with which I am affiliated.

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