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Clinical Decision Making and Mental Health: On Challenges in Assessment, Junk Science and Social Trends

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Judgement and decision making are rife with cognitive biases. Despite their everyday fitness, these can affect clinical assessment, which may lead to erroneous decisions. All specialists are prone to bias; these vulnerabilities permeate social strata, while people underestimate their own proneness to these errors. In mental health, statistical prediction and empirically robust tests should compensate for such errors. Therefore, the paper reviews basic heuristics and associated biases in practice, namely, representativeness, availability, and anchoring. Furthermore, it is elaborated how clinical decision making is influenced by social factors, thus giving rise to groupthink. Experience without adequate training might even worsen decision making by overconfidence. Psychoeducation on biases, among others, shows promise in countering them. In addition, examples that demonstrate in which way heuristics and biases contribute to the receptiveness to popular psychology, myths, pseudoscience, misinformation, alternative health methods and radicalization, are provided in the paper. Relativization of evidence and disinformation present crucial challenges to the acceptance of science and to the democratic society. Science communication should influence market offering and consult social psychological communication research in combatting disinformation, useful for both undergraduates and the lay audience.

Keywords: clinical assessment, decision making, cognitive biases, social influence, pseudoscience

Introduction

Science communication aims to contribute to understanding and enjoyment of science (Burns et al., 2003), helping individuals to integrate such information with other considerations in personal choices and policy preferences (National Academies of Sciences and Medicine, 2017).

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People rely on simplified processing of information that leads to systematic deviations from rational responding when faced with uncertainty (Pohl, 2022; Tversky & Kahneman, 1974). Such deviations are usually conflated under cognitive biases, heuristics and logical fallacies, the derivatives of adaptive processes. The APA ethics code addresses cognitive biases (American Psychological Association, 2017), of which awareness figures as vital to respecting people's rights and striving to maintain fairness. These errors may negatively affect accuracy in judgement, decision making and evidence-based practice, which are tantamount to adhering to psychological science.

Susceptibility to cognitive biases permeates different social and economic strata, degrees of education, levels of intelligence (Stanovich, 2009), scientific fields and experts, regardless of personal experience (Spengler et al., 2009), including both clinicians (Miller et al., 2015) and statisticians (Mahoney & DeMonbreun, 1977). This theoretical paper builds upon previous more comprehensive work on clinical decision making and cognitive biases (Bowes et al., 2020; Lilienfeld & Lynn, 2014; Magnavita, 2016), which helped by guiding literature selection.

The paper aims to educate about these concepts, especially as applicable in clinical practice, issues and general solutions, as well as to encourage informed improvements in authoritative communication of modern psychological science to influence market offering and demand, where such influences are perceived to be lacking.

Additionally, in the social context of contested science (e.g., Donois et al., 2025), the paper covers the way in which issues and norms within clinical practice can reach beyond an obscure professional sphere; it emphasizes how professionals can also fall prey to the same tendencies that drive popular misperceptions, relating these to popular and junk psychology, while relying on current topics of research in misinformation, relativization of evidence and countermeasures. The paper argues that authoritative psychological science organizations should also facilitate preemption or debunking psychology-related misinformation and prevailing public misperceptions. Finally, it maintains this contextualization and this set of solutions as essential to its purpose.

Conceptual Definition

Heuristics are efficient cognitive processes that ignore information, conserving time and effort in decision making (Gigerenzer & Gaissmaier, 2011). Relying on these "mental shortcuts" can lead to more accurate judgement than weighing "all" the information, especially under the conditions of temporal constraints and small samples. As such, they satisfice. Heuristics usually coincide with cognitive limitations and the accuracy-effort trade-off.

Uncertainty and Inference

The underlying principles of heuristics are inherent to all living organisms and their adaptive action. Living organisms can only maintain bodily integrity by actively exerting adaptive control over their action-perception loop in a reciprocal interaction with their environment, emitting actions and receiving sensory observations (Friston, 2018; Parr et al., 2022). These actions vary in cognitive sophistication, from following nutrient gradients in bacteria to highly specific and long-term planning in humans, contingent on selective attention. All facets of behaviour/cognition should follow the imperative of minimizing the statistical surprise of sensory observation, whereby agents tend to control their action-perception loop to solicit the desired sensory observations. Instead of minimizing their surprise directly, they can minimize a proxy, or prediction error, thus maintaining a stable internal state.

The brain uses internal models to generate the predictions about sensory input. The active part changes the environment to match predictions. By exerting control over the environment and minimizing statistical surprise by proxy, a living system maintains homeostasis in spite of an otherwise intractable inferential problem.

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

In "rational" learning, a prior belief about the likelihood of an outcome should be revised due to novel evidence (Huttegger, 2017). In Bayes' theorem, A and B are events; $P(A|B)$ is the posterior probability of A given B, $P(B|A)$ is the probability of the event B occurring given that A is true, $P(A)$ is the prior probability of A occurring without any given condition, while $P(B)$ is the marginal or total probability of the event B occurring without any given condition.

People deviate from the normative Bayesian standard by disproportionately ascribing greater weight to prior beliefs and less to novel evidence (Kahneman, 2011). This conservation of effort results in a slow and inefficient revision of prior beliefs. In turn, this leads to cognitive biases, heuristics, belief perseverance, selective attention, cognitive dissonance, system justification, and other associated phenomena.

Driven by epistemic needs, a person may offload cognitive processes to the components outside of their internal state, to ingroups, or defer to authority or social norms (Constant et al., 2022; Hogg, 2012).

Dual-Process Theories

In spite of the challenges among the dual-process theories of higher cognition, ample evidence supports the division of cognitive processes (Gawronski et al., 2024; Kahneman, 2011). Different frameworks describe mental processes via two different types of thinking, intuitive and reflective. Hence, decision making is influenced by two types of processes. Type I reflects rapid, unconscious, effortless and automatic thinking, often ruled by heuristics; it is default, implicit and experiential. Type II reflects effortful deliberation that is burdensome to engage in, rule-based processing, and analytical responses.

However, these theories have faced criticism related to oversimplification, (false) divisions or bundling accordant with different information contents, in spite of information complexity. Furthermore, these issues persist in the conceptualization, operationalization and redundancy of theories. Likely, a set of basic principles generalizes across domains. The formalized process dissociation model suffers from similar drawbacks when it comes to division and insufficiency in capturing the processes underlying behavioural responses. Criticism and the challenges stemming from single-process and multi-process alternatives in this open topic have been covered in greater detail by Gawronski et al. (2024).

Even with their everyday usefulness, heuristics lead to systematic and predictable errors (Tversky & Kahneman, 1974). Epistemically, cognitive biases present a systematic pattern of deviation from norm or rationality in judgement (Haselton et al., 2015). They are theorized to arise from overreliance on Type I heuristics, though neither are limited to the Type I domain, since Type II is also not universally more adaptive.

Representativeness

People use this heuristic when estimating the probabilities by assessing how similar the target is to an existing prototype. For instance, a clinician evaluates how immediate, situationally salient or perceived prominent characteristics match the clinical prototype when forming a first impression diagnosis. Apparent similarities are categorized or grouped together.

Availability

This heuristic evaluates the probabilities by the accessibility of an association evoked. What first comes to mind may be impacted by recent events (*the recency effect*) through the ease of recall. Associative learning contributes to both representativeness and availability by arranging characteristics into a schema. Still, what first comes to mind does not have to be the most probable thing to happen, and anecdotal evidence does not guarantee commonness.

Anchoring

The anchoring and (insufficient) adjustment heuristic is the failure to sufficiently update beliefs because of the initial reference points that provide an enduring benchmark for evaluating information. People rely on this piece of information to decide whether something is too much or too little in comparison.

A more extensive and detailed collection of biases can be found elsewhere (e.g., Damnjanović, 2024).

Clinical Application and Relevance

When it comes to intricacies of clinical judgement, it would be prudent to introduce the evolution of classification and assessment of psychopathology, as well as the importance of these in research and practice.

Psychopathology

Etiopathogenesis is often difficult to establish with certainty. Mental disorders rarely present static conditions with singular biological causes and definitive paths to healing. Their conception depends on individual functioning relative to the internal, interpersonal, social and cultural context.

Mental disorders are based on different definitions of abnormality, such as statistical deviation, deviation from social norms, function failure, or non-achievement of a theoretically ideal development, adaptation or functioning – each definition with its own strengths and weaknesses. The features of the informal "four Ds", danger, deviance, dysfunction, and distress, are also taken into consideration.

Multidisciplinary approaches integrate various abnormality models: biological, psychodynamic, cognitive-behavioural, humanistic-existential and sociocultural. Deriving from the general systems theory, equifinality refers to the observation that in open systems an end state can be reached through different pathways (Cicchetti & Rogosch, 1996). On the other hand, multifinality suggests that a wide variation in outcomes can be accomplished by similar histories, depending on the organization of the system in which one operates.

Psychiatric Diagnosis and Nosology

Psychiatry has been criticized for having served to label, stigmatize and control non-conformity besides the questionable diagnoses, for coercion and various forms of abuse, medicalization, pathologization, overdiagnosis with deficient scientific basis etc. (Frances, 2013; Iliopoulos, 2022; Middleton & Moncrieff, 2019).

Pinel's classification, made two centuries ago, and Kraepelin's nosology provided the foundation for modern psychiatry (Frances, 2013). Psychiatric diagnosis in the late 20th century lacked reliability and its treatment credibility, giving impetus to further development of a formal psychiatric classification with standardized diagnostic criteria.

The current edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5-TR*), widely used in North America, has improved reliability and validity compared to the previous systems (American Psychiatric Association, 2022; Zachar et al., 2019). Notwithstanding, conceptual issues and inconsistencies in reliability and validity have remained (Allsopp et al., 2019; American Psychiatric Association, 2022; Bakker, 2019). Nevertheless, the *DSM* can be observed as comprehensive and indispensable (Frances & Widiger, 2012) since it provides an easily communicable categorical approach to classification with detailed criteria, decision trees and subcategories.

The changes in the operationalized criteria and differences in defining a disorder have affirmed the importance of the appropriate representation of a disorder for research or clinical practice. These refer to the intensity of measured variables, the way in which the constructs are grouped together, internal consistency, divergent and convergent validity, as well as the sensitivity and specificity of measurement.

Disorders such as those of personality that have long sparked controversy regarding the appropriate classification further complicate the matter (Paris, 2020). When it comes to a personality disorder, the official classification has been deemed fundamentally flawed for its discrete categorical conception (Cloninger, 2000). The clusters into which personality disorders are assorted overlap, and systematic diagnosis as such is impractical. The *DSM-5* does provide an alternative model for personality disorders based on the pathological Big Five traits by rounding up a sequential diagnosis with a gradation of pathology severity. Cloninger and colleagues developed a personality inventory as a dimensional approach to the diagnosis of the personality disorder and prediction of trait reorganization (Cloninger, 1999).

The *ICD-11* (World Health Organization, 2024) represents the prototypal approach (implemented in the early *DSM* editions) in which more unguided clinical judgement may be required for a correct diagnosis. Even though, in essence, the *DSM* still relies on the clinical prototype, it is more precisely defined by the diagnostic criteria. The *ICD* requires a clinician to match the patient with the prototype. In practice, this may contribute to pathologization, psychiatrization (Beeker et al., 2021), resource misallocation (Frances, 2013), especially with the conditions such as personality disorder(s). On the other hand, combining the carefully constructed prototypes with prototype resemblance rating could outperform a previous categorical system in predicting functioning (DeFife et al., 2013). The latest *ICD-11*, featuring

severity classification and trait domain specifiers, involves major changes in the ways in which professionals diagnose and research personality disorders (Bach et al., 2022). The *ICD-11* abandons more than twenty specific (sub) diagnoses of a personality disorder previously included in the *ICD-10*, while addressing artificial comorbidities.

Personality traits can predispose a person to a disorder, they can modify a disorder, be changed by a disorder or present an expression of one (Bijttebier et al., 2009; Cloninger & Svrakic, 2017; Corr, 2009; Goodwin & Jamison, 1990). Non-dimensional approaches and psychometrically weak assessment should not suffice in diagnosis or predicting treatment outcomes related to changing, complex, heterogeneous conditions and challenging environments.

The Research Domain Criteria (RDoC) initiative by the US National Institute of Mental Health (NIMH) aims to resolve the issues with the *DSM* by creating a new taxonomy that capitalizes on the advances in molecular, cellular and systems neuroscience. It stands as a research framework, in parallel to the *DSM*'s practical diagnostic purpose, by bridging the behavioural, cognitive, emotional and biological constructs unconstrained by the *DSM* categories. The NIMH's goal is one of developing an etiologically based classification, in line with modern medicine, striving to evolve past symptom-based diagnosis. Overarching sets of challenges to RDoC were differentiated as conceptual, methodological and logistical/pragmatic, and exposited elsewhere in a review (Lilienfeld & Treadway, 2016).

The improvements in external validity and general methodological rigour of nascent prediction models in precision psychiatry, aided by machine learning, have the potential to enhance clinical decision making (Lucasius et al., 2025; Meehan et al., 2022).

Psychological Assessment

Criticism elaborated in the previous section is related to certain outdated views and harmful practices, once present in psychology as well (e.g., American Psychological Association, 2024). Its scope is vast, and the study of behaviour and mental processes would not have been viable without continuing progress in methodology and statistical inference throughout its subfields.

Clinical psychologists mostly rely on the dimensional approach, exemplified by neuropsychological assessment and personality inventories. The dimensional approach formalizes the assumption that a construct which is measured varies in intensity, conserving information about variability.

A psychiatrist may typically gather information through detailed medical evaluation, interviews, rating scales and from a psychological report to guide decision making. Beyond behaviour observation, interviews, rating scales,

and medical summary, a qualified psychologist may also use intelligence assessment, projective tests and objective personality tests. Developing the tests with good psychometric properties requires extensive training in methodology and statistics, combined with theoretical knowledge and pragmatic considerations.

Personality inventories have a century-old history of psychometric advances and broad applicability in both clinical and non-clinical populations. They present an attempt at comprehensive standardized measurement. Complex interaction between factors or facets precludes use without specialized training. Modern psychological tests are manualized and manuals provide information on psychometric properties, administration, scoring, statistical prediction and interpretation guidelines.

Hierarchical and dimensional approaches to measurement of psychopathology contribute to superior predictive and explanatory power (Cloninger et al., 1997; De Fruyt et al., 2000; Esterberg & Compton, 2009; Kotov et al., 2021; Simonsen, 2010; Waszczuk et al., 2017).

Biases in Practice

The following inexhaustive arranging of heuristics and associated biases serves a didactic purpose.

Representativeness

Representativeness may coincide with stereotypes and mislead the observer, based on the categoric prototypes the person holds, into attending irrelevant information.

A high correlation was found between the psychologists' ratings of likelihood and similarity (Garb, 1996). A high degree of subjectivity in psychiatric diagnosis may cause additional difficulties when atypical variants of a disorder are present (Crumlish & Kelly, 2009).

Illusory correlation refers to imputing a connection between variables when there is none. The *conjunction fallacy* occurs when it is assumed that multiple symptoms/signs are more likely to co-occur than one on its own, despite being less probable.

A statistical principle termed *regression to the mean* states that extreme scores tend to become less extreme upon retesting. Its associated *regression fallacy* happens when a clinician misattributes this change, e.g., normalized scores, to undue causes or to an otherwise ineffective treatment.

Base rate information refers to the frequency of members of distinct categories in the population, whereas *base rate neglect* is the tendency to underweight these prevalences.

Availability

Diagnostic overshadowing occurs when salient features obscure or reduce the relative importance of other less salient features (Kanne, 2018). Hence, less memorable evidence might be overshadowed by impressive anecdotal evidence.

The *hindsight bias* refers to the inclination to view an outcome as having been more predictable after it occurred than it could have been previously. This bias has a host of disadvantages in medical decision making (Arkes, 2013), adding to overconfidence in prediction making abilities and retrospective memory falsification, alongside the potential anchoring of decision making to a diagnosis provisioned on referral.

Anchoring

Clinicians tend to stick with the initial impressions despite the availability of new information, which may delay the correct diagnosis (Ly et al., 2023; Saposnik et al., 2016). *Premature closure* occurs when clinicians develop firm diagnostic impressions within the short exposure to the patient, as short as a minute (Gauron & Dickinson, 1969), which may influence hasty generalization, something present in medical research as well (Peters et al., 2024). A situational presentation without cross-situational consistency may be misattributed to personality traits due to discounting of situational factors (*fundamental attribution error*).

In mental health practice, *psychological masquerade* occurs when clinicians underestimate the importance of other medical causes (Croskerry, 2003; Spengler et al., 2016).

Hoping to deter the anchoring bias, the introduction of new information may even reduce prediction accuracy (Ægisdóttir et al., 2006). Nondiagnostic information weakens the implications of diagnostic information. This *dilution effect* "may occur because people make predictions with simple similarity judgments that involve comparing the information they have about the target with their conception of outcome categories" (Nisbett et al., 1981, p. 248). The subjects who had been given mixed information made much less extreme predictions than those given only diagnostic information. Salient nondiagnostic information thus "dilutes" the significance of less salient, but more diagnostic information. Furthermore, decision making is influenced by the way in which information is presented (*the framing effect*), and clinicians often initially must rely on the patient's self-report upon which diagnostic hypotheses may be tested. The anchoring effect was found to occur most strongly with antisocial and anxiety cases (Richards & Wierzbicki, 1990).

In psychiatry, symptoms are not always considered absent just because a patient omits them from the report. Crumlish and Kelly (2009, p. 76)

expanded on that. "In a woman with progressive weight loss who reports an intake of 3000 calories a day, a diagnosis of anorexia nervosa can be justified as easily as a diagnosis of coeliac disease, the assumption being that the self-report of someone with anorexia nervosa is unreliable" (Groopman, 2007).

Confirmation bias is the tendency to interpret information to suit a pre-existing hypothesis, i.e. to overvalue supportive data and discount disconfirming data. In an experimental decision task, psychiatrists conducting a confirmatory search made a wrong diagnosis in 70% of the cases, in comparison to 27% after a disconfirmatory search (Mendel et al., 2011). Such erroneous confirmatory elaboration may arise from motivated reasoning, and effortful, analytical cognition, befitting the Type II processes.

Affect

Diagnosis can also be influenced by emotional responses impacting the risks-and-benefits assessment. These responses might misinform the clinician of other people's reaction to the client in an informal setting (*social projection*, potential *false consensus effect*).

Patients with a previous diagnosis of personality disorder may be seen as more difficult and less deserving of care compared to controls, implying that a personality disorder diagnosis could promulgate a pejorative judgement beyond a diagnosis, which may result in a lower sense of purpose and subpar treatment quality (Chartonas et al., 2017; Lewis & Appleby, 1988; Sansone & Sansone, 2013). This label and a lack of purpose may subsequently rout patients with personality disorders out of care through a variety of means. A discourse of untreatability functionally demedicalizes a personality disorder. Clinicians also tend to erroneously diagnose borderline personality disorder accounting for their dissatisfaction with clients (Sulzer, 2015).

Commission bias occurs when treatment is unclear and commenced to better explore the mechanisms behind a provisional diagnosis. A psychiatrist might prematurely increase the dosage, thus worsening the adverse effects, to appear that they are "doing something" when faced with treatment plateauing (Crumlish & Kelly, 2009).

A clinician could also opt for a benign interpretation of signs and symptoms (wishing their patient well). Conversely, serious conditions may be chosen instead to ensure a lower likelihood of a false-negative error in judgement.

Social Influence

Previous sections addressed heuristics and cognitive biases as impediments to good practice. That does not exclude social influence as a principal

component in addressing inferential issues. Social cognition plays a key role in the integration of assessment data, staff conferences, and in training contexts, like supervision groups.

Authority and Groups

Deferring to an established authority resolves uncertainty. Informational conformity refers to a change in behaviour or an adoption of a certain opinion in accordance with the influence of an authority deemed more accurate than oneself.

This acceptance may be fallacious when presupposing that the authority is unquestionably right, when the evasion of confronting this figure results in errors and a cascade of adopting erroneous practices as "right" by mere normative conformity, seeing that "everyone does it".

Along with the *appeal to authority fallacy*, it would be worth noting the *authority gradient*. The authority gradient is a term that originated in aviation to describe the situations where pilots and copilots may communicate ineffectively under stress due to perceived differences in status (Cosby & Croskerry, 2004). Up to one third of healthcare personnel may be reluctant to speak up when noticing the potential errors – the obstacles which can be avoided by cultivating a shallow authority gradient (Sekar et al., 2022).

The spiral of silence theory posits that people are more likely to express their opinions when they see that others share them. Conversely, if they perceive their opinion as unpopular within a group, they tend to stay silent (Taylor, 1982). Consequently, *pluralistic ignorance* refers to the situations in which an individual perceives their own attitudes as misaligned with the supposed opinion of ingroup, whereas the true state might be the opposite, thus reinforcing a false consensus. Correspondingly, the *bandwagon effect* is the tendency to conform to an assertion believing it correct because others believe in it (Kiss & Simonovits, 2014), in part synonymous with the norms maintained by the authority and members' unintended tacit approval. *Groupthink* and its consequences have long been studied (Turner & Pratkanis, 1998). An excessive desire for group cohesiveness and identity may further deter dissent, which maintains an uncritical approach to decision making, driven by conformity and compliance.

Institutional inertia bears importance in institutional economics (Samadi et al., 2024). Psychiatric institutions and psychology departments may be reluctant to cut the outdated practices and invest in the practices backed by contemporary science, due to a range of factors. Erroneous ideas can get deeply-rooted and self-reinforced in practice by cognitive biases and antiquity mistaken for validity (e.g., hypnosis/hypnotherapy wrongly deemed as a standalone treatment for a variety of disorders).

Clinicians are obliged to maximize the expected utility for the patient (Grove, 2005). This fiduciary responsibility is covered by the beneficence and nonmaleficence principles, as well as by expecting the licensed authorities to secure good practice and transparency in research outcomes. Institutions should adhere to psychological science. No practical problem in mental health should justify diminishing the importance of expertise grown by formal psychological education on behalf of private interests vested in maintaining a hypothetical status quo of conserving unscientific practices.

Statistical Prediction or Expert Intuition?

Meehl argued that the clinical versus statistical prediction debate is central to the assessment and prediction of behaviour (Grove, 2005). The distinction is between the source or type of information used, and "the manner in which this information is combined for predictive purposes" (Meehl, 1954, p. 15). The *mechanical* (or *statistical*) method refers to prediction by a direct application of an equation, with no further inferring by a clinician during information combination. Should actuarial predictions be synthesized clinically, this would be *clinical* prediction, and vice versa. This postulation renders the two approaches mutually exclusive.

The best prediction scheme would be the one which produces the smallest error. However, it is hardly possible to know which method would be the best on a case-by-case basis. Per Bayesian decision theory, this would be the one that maximizes expected utility for the stakeholder.

The expected utility theory as a descriptive model of decision making under risk has been criticized from the standpoint of prospect theory. People's choices deviate from the utility theory. They tend to isolate a choice problem from their assets and evaluate it in terms of relative gains and losses. People underweight the outcomes that are probable in comparison with those that are obtained with certainty, which contributes to "risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses" (Kahneman & Tversky, 1979, p. 263).

"Therefore, in the absence of reliable cost information, the best overall data combination method is the one with the best overall classification accuracy (hit rate) or best overall correlation with the criterion" (Grove, 2005, p. 1235). Evidence supports statistical prediction as generally more accurate than clinical prediction (Ægisdóttir et al., 2006; Grove, 2005; Grove et al., 2015).

Bias blind spot refers to unawareness of one's own biases, despite a ready ability to spot biases in others (Pronin et al., 2002). A survey of licensed psychologists with forensic interests examined their familiarity with and understanding of cognitive biases, self-reported strategies to mitigate them and their cognitive reflection abilities regarding the understanding and mitigation strategies (MacLean et al., 2019). The majority were able to

discern real biases from sham biases, including mitigation strategies. Still, most of them also endorsed an ineffective bias mitigation strategy (i.e., introspection). These were related to cognitive reflection abilities. Although clinicians can recognize biases, they fail to recognize their effects in actual work and mitigate them accordingly.

Mental health practitioners do think of their peers as more susceptible to bias than themselves. "Evaluators who had received training about bias were more likely to acknowledge cognitive bias as a cause for concern, whereas evaluators with more experience were less likely to acknowledge cognitive bias as a cause for concern in forensic evaluation as well as in their own judgments" (Zapf et al., 2018, p. 1). This can also lead to overconfidence, and confidence is a poor indicator of accuracy (Miller et al., 2015).

In a sample of psychologists and psychology students, a path analysis has revealed that "clinical experience is a strong predictor of the ability to form an accurate diagnosis", where more training and targeted diagnostic questions aided diagnostic accuracy (Brammer, 2002, p. 110). This is in line with efficient pattern recognition in expert problem solving (Gobet, 1997). Likewise, although affected, expert crisis decision makers are less prone to bias than laypeople (Paulus et al., 2022). It could be expected from greater expertise (reliant on quality feedback, not to be equated with mere experience) to outperform direct statistical prediction when data are sparse and an experienced professional is well-tuned to a specific time-sensitive task. In general, evidence does not favour the supremacy of clinical experience.

In the study that examined psychotherapists' outcomes over time using longitudinal, naturalistic data (S. B. Goldberg et al., 2016), it was determined that a very small, though significant, change in outcome can be detected. Pre-post effect sizes in outcomes tended to diminish as experience increased, while controlling for a multitude of variables related to the patients, caseloads and therapist characteristics. Some demonstrated progress despite the overall trend. A meta-analysis found a mere 13% increase in decision making accuracy among experienced clinicians, concluding that, contrary to the clinicians' perceptions, accuracy did not improve with increased education, training, or clinical experience (Spengler et al., 2009).

In a simplified hypothetical scenario, a male college student experiences worry, self-doubt, distrustfulness, and anticipation of failure in public appearance or oral exams. History of abuse by parents has been confirmed. He reports avoidance not limited to social situations, difficulty in maintaining relationships, despite wishing for the opposite. Sometimes he doubts his choice of profession. Intolerance of uncertainty before exams, dichotomous thinking, a strong need to ascertain readiness, followed by a disparaging self-description are also present. Anger has become more frequent. The student thinks it is unfair that his friends fail to invite him to parties.

Supposing a psychiatrist of psychoanalytic orientation is the first one to make the evaluation and do it according to a clinical prototype, the psychiatrist is tempted to suggest a personality disorder for salient features, reading personality development, self-concept and defence mechanisms (as accessible by Kernberg's work) into the presentation, confirming the patient's distorted self-critical presentation (framing). It has been a rough day, and it is the end of the psychiatrist's shift (affect and overload). Perhaps, gender expectations discount social anxiety in men (representativeness). Symptoms as such are merely an expression of the "deeper" causes as reported. Time constraints disallow further investigation of personality coherence.

Sending off the patient to a psychologist, the psychologist concludes that self-devaluation is situational erroneous thinking, contingent on uncertainty as mediated by social factors. Avoidance might be conditioned by the initial presence of other people. Difficulties in maintaining relationships stem from avoidance of social situations, and not pathognomonic tendencies of the personality disorder. The student has been trying to make changes, aware of his contribution to anxiety states, but inhibited anger, never sure whether it would help to express or repress it. Collaborative assessment disconfirms the provisional diagnosis, determining social anxiety according to tests.

During the roundtable, the psychologist presents the findings to the psychiatrist, who is accompanied by another psychologist, perceived as a close associate to the psychiatrist. The psychiatrist asks confirmatory questions, and the psychologist misinterprets these as intentionally influencing the psychologist's judgement. Social influence, though imagined, and anchoring contribute to the psychologist acquiescing to the provisional diagnosis, further elaborating it as correct, despite test results, lest a false-negative error is made.

Bad Psychology and Social Relevance

Popular psychology is psychological knowledge as understood by the general public, which may be oversimplified, misinterpreted, and outdated (American Psychological Association, 2025b). It also includes psychological literature intended for use by a lay audience. It would be fair to point out that popular psychological literature does not necessarily only propagate pseudoscience and gross oversimplifications. In fact, this very paper includes references to an acclaimed and relevant expert's popular science book (Kahneman, 2011), acknowledging its admitted flaws (McCook, 2017; Schimmack, 2020).

Populism in Psychological Science

Lay population and professionals that lack relevant competence could fall prey to junk science, even from within their own broad fields. Junk science

involves invalid or fraudulent research findings (American Psychological Association, 2025a).

This includes the popularity of pseudoscientific practices related to "alternative" medicine (Gilovich & Savitsky, 2002). Practices with questionable foundations rely on representativeness to gain plausibility by association, arbitrary categorization and buzzwords (e.g., "psychobabble").

It has been argued that Freudian theory gained considerable popularity by encouraging laypersons to overuse the representativeness heuristic (Nisbett & Ross, 1980). A limitless number of potential relationships between the symbolic content provides a fertile ground to an unbound use of loosely understood psychoanalytic terms. This can lead a clinician to derive an unfalsifiable, prototypically "meaningful" conclusion, persuaded by their own effort and conveniently layered argument.

Contemporary psychoanalysis has better defined and operationalized variables drawn from its long tradition, and has been able to produce empirically supported treatment to certain disorders comparable to cognitive behavioural and other treatments, depending on the goal (APA Division 12 Society of Clinical Psychology, 2022; Auchincloss & Samberg, 2012; Clarkin et al., 2007). These findings do not attest to the entrenchment of standardization of psychodynamic treatment and measurement, notwithstanding laudable strides in that direction (Both et al., 2019; Lingiardi & McWilliams, 2015, 2017; OPD Task Force, 2008).

Populism can be described as an anti-scientific stance embracing simplification, "irrational rejection of analytical, logical, and evidence-based arguments" (Fiedler, 2021). Fiedler's chapter expounded on the practices that mar the research and "evidence-based" practice itself: a continued role of misused significance-testing, questionable research practices, along with the lasting problem of scientific myths (Lilienfeld et al., 2010).

Meehl (1973) clarified thirteen points of "destructive criticism" in his classic text, including a relativization of the quality of research in which all evidence equals as good evidence in case conferences, pertaining to the "buddy-buddy syndrome". This would also facilitate reinforcing norms that he described candidly under the "reward everything – gold and garbage alike" point, demonstrating a layer of impediments beyond cognitive biases – characterized by social influence.

When individuals make sacrifices to achieve a goal, they often rationalize their effort by enhancing the perceived value of the objective (Baumeister & Vohs, 2007). The effort justification hypothesis is derived from the theory of cognitive dissonance (Festinger, 1954). Patients undergoing ineffective treatment could be motivated to justify their adherence and report improvements despite lacking marketed improvement by objective measurement. Undergraduate students could opt for psychotherapy training

early on, before having passed relevant statistics and clinical courses, with different motives. This purported training, at least at its basic phases, might not rely on necessary clinical competence. Knowledge bestowed may not be any more effective than standard psychological support expertise guaranteed by tertiary degrees. By the time a student has acquired the skills necessary for critical reexamination of practice and for providing psychological support, they may have already fallen to dissonance reduction by the justification of effort put into the specific non-university coursework. Predatory behaviour of poorly regulated providers of training could include targeting undergraduate students for a pay-to-play scheme with a goal of eventually providing them with a paper of completion and clinical practice collaboration years after, practically irrespective of the attendees' formal education and expertise (e.g., rationalized by the claims that psychotherapy is a distinct form of art, thus dismissing its scientific foundations).

According to the elaboration likelihood model of persuasion (O'Keefe, 2012; Petty & Cacioppo, 1986), people who are insufficiently motivated or able to elaborate a message usually attend to superficial indicators of competence, in this case, the striking number of credentials/certificates a clinician may present, at the expense of assessing the quality of education and scientific rigour undertaken to research the specifics of a psychotherapeutic practice in question. Credential inflation devalues tertiary degrees (Araki & Kariya, 2022), potentially penalizing the individuals with training certifications only when their skills are apparent to be deficient, with accredited higher-level tertiary degrees themselves losing premium by default. Comparable to Meehl's (1973) point, this would render all training (and evidence) equal and disincentivize adhering to the rigours of psychological science.

Initially, political topics were often explained by clinical psychology and psychoanalytic theory (Adorno et al., 2019; Lasswell, 1930). Its use, subject to research, has shouldered understanding of political stakeholders, public and private alike. Adorno et al. (2019) conducted an influential study on authoritarianism, originally published in 1950. Psychoanalytic explanations, however prolific and insightful, were not sufficiently supported by evidence in explaining authoritarianism in general and compared with later social cognitive approaches (Altemeyer, 1981; Duckitt, 2015).

Nevertheless, popular psychology store shelves consist of overabundance of messianic publications, even though they are scientifically groundless: pathologizing (mis)interpretations of the contemporary issues associated with authoritarianism and populism (e.g., appropriately criticized by Frances, 2017), based on the self-promoted expert authors' clinical experience (immaterial to political psychology) and buzzwords serving to support the misapplication of both psychoanalysis and social/political psychological findings (assuming the author relies on this evidence to begin with). These

capitalize on self-serving attributions and the fundamental attribution error, among others.

Another bias that might contribute to the persistence of a distinct label to a syndrome is the *neglect of missing data* (Lilienfeld & Lynn, 2014). The dismissal of missing data in research reduces statistical power and increases estimation bias (Nakagawa & Freckleton, 2008). Clinicians may resort to overestimating a specific disorder for having been exposed to the clinical population longer than other professionals. This neglect occurs when people underweight the absence of events, in line with the prospect theory.

Psychotherapists may develop a skewed perception of their treatment's efficacy, presuming that clients who undertake treatment improve (due to self-reporting and the regression fallacy), while underestimating non-improvement because clients without improvement as such might be inclined to drop out. As psychotherapists spend more time with clients that spend more time in treatment, they could overestimate the chronicity of the condition they are exposed to (Cohen & Cohen, 1984).

The neglect of missing data can encourage writing of profuse self-help literature, part of which explains any cognition/behaviour as resultant from trauma. Most people with a traumatic experience do not develop posttraumatic stress disorder (Kilpatrick et al., 2013), further indicating how unfounded the deleterious appeal of pseudo-profound reductionism of "trauma" is. Essentialization of childhood abuse and overgeneralization of experiences circumstantial to general psychopathology stand behind the popularization of "trauma" (also noteworthy, a critique by Peele, 2011).

Mental health literacy, social support and reducing stigma contribute to help-seeking (Gulliver et al., 2010), while popularization and miscommunication of psychopathology can lead to more harmful behaviour (Gould et al., 2016; Harper, 2016).

Audience

Pseudo-profound bullshit consists of impressive, though actually vacuous assertions (Pennycook et al., 2015). Detecting it is a matter of discernment of deceptive vagueness. Bullshit receptivity negatively correlates with the ability to differentiate between fake and real news (Pennycook & Rand, 2020). It is associated with intuitive cognitive style, supernatural belief and conspiratorial ideation (Pennycook et al., 2015). Scientific reasoning proved to be a better independent predictor of subscribing to conspiracy theories than general analytic thinking (Čavojová et al., 2022). Another study found that those with better understanding of science had fewer epistemically suspect beliefs in general, consequentially behaving in accordance with evidence-based policies and getting vaccinated. However, it also found that

analytic thinking correlated positively with COVID-19 non-compliance with preventive measures (Čavojová et al., 2024), further betraying the proneness of utilizing the Type II processes to elaborate and confirm the unfounded Type I propensities.

It has also been found that the frequency of persuasive bullshitting "predicts susceptibility to various types of misleading information and that this association is robust to individual differences in cognitive ability and analytic cognitive style" (Littrell et al., 2021, p. 1484).

People prefer the known information they have been exposed to in light of conflicting evidence (Petty et al., 2005; Zajonc, 1968, 2001). Podcast hosts and gurus can capitalize on the mere exposure effect by repeating converging arguments, supported by the profound insight, pseudoscientific theories and at best simplifications, to persuade and attract subscribers.

Self-Enhancement Strategies and Conspirituality

Conspirituality is a hybrid system of beliefs, a synthesis of the female-dominated New Age and the male-dominated realm of conspiracy theory (Ward & Voas, 2011). It is an ideology inspired by political disillusionment and alternative worldviews. Unfounded scientific and psychological beliefs are at the intersection of the belief in a shadow government and bio-conspiracies: a hidden cancer cure, free energy technologies, engineered diseases, the appeal to nature fallacy regarding psychopharmaceuticals (expectedly without equal concern with other substances, ranging from supplements to psychedelics) etc. Wellness communities (partially fed into by countercultural movements) and, most prominently, the far-right internet media can amalgamate into a conspiratorial, Manichean worldview filled with the alternative, "dark" scientific facts, misrepresentations of study findings as otherwise suppressed from the public by "the (Western) establishment" or supranational entities like the World Health Organization.

Alt. health influencers monetize their audiences by appealing to alternative modalities that make up "holistic" health and self-optimization practices, through a diverse set of products, courses and retreats intended for "spiritual awakening" and other pseudo-psychological milestones (Baker, 2022). These influencers also profit from spreading medical misinformation, being part of an industry of anti-vaccination advocates and COVID deniers (Center for Countering Digital Hate, 2021). Wellness culture and web culture can coalesce for authoritarian ends, having been exploited to spread misinformation, conspiratorial thinking, and extremism (Baker, 2022).

Believing in a single set of conspiracy theories, i.e., anti-vaccination beliefs, highly correlates with other unrelated conspiracy theories, authoritarianism, and negatively with political knowledge and education (Z. J. Goldberg & Richey, 2020; Swami et al., 2010).

The antifeminist online communities, referred to as the manosphere, often invoke evolutionary hypotheses to advance a political point. The manosphere has its own interpretation of evolutionary psychology, reinforced with personal narratives, sexual double standards and misogynistic beliefs (Bachaud & Johns, 2023).

The far-right self-improvement blends the language of fitness and self-help with propaganda and conspiracies (Elley, 2021). This unique form of self-improvement driven by discontent, known as the "iron pill", is ensued with radicalization among the far right in online forums. "Red pilling" opens a segment of "alternative" intellectuals that reveal "hidden" knowledge and strength to cope with everyday challenges. This speaks to the uniqueness of users and their brevity to engage with truths purported to be too uncomfortable for wider society. Self-serving attributions blame the world for personal misgivings.

In an allegedly collapsing civilization, ailed by a "degenerate" society, a positive outlook can be derived from physical exercise and performative machismo that reinforces a self-concept of masculinity, authenticity, traditionality, and capability characterized by the profanity-laden subcultural dialects and overt targeting of social and political outgroups. Pseudoscientific and conspiracy theories of sexual competition promote avoidance of masturbation, lest the user reduce their testosterone levels and develop a porn addiction that serves vilified powerbrokers (e.g., globalists/elites, "the Jews").

These communities, despite leaving posters more isolated, satisfy cognitive and social needs. Whichever positive changes of employment and social participation these communities might facilitate, their beliefs and behaviours anchor to an extremist worldview, sublimating individuality to the collectivized body and fascist struggle. Despite the improvements in well-being expected with employment and social participation, users mould themselves to best fit a militaristic movement detached from the general population.

Solutions

Research has focused less on countering these biases than documenting them (Lilienfeld et al., 2009). Unfettered biases have societal ramifications that reach far beyond clinical judgement, including group conflicts and ideological extremism. Lilienfeld et al. (2009) argued that combating extreme confirmation bias should be a top priority.

In cushioning against groupthink, it can be suggested that using "slowing" strategies (such as checklists) and playing a "devil's advocate" could help (Campbell et al., 2017; MacLean et al., 2019). Structured interviews can also counter premature closure and biases in general (Bruchmüller et al., 2011). In

fact, therapists underestimate patients' acceptance of structured interviews. Their overestimation of the utility of open interviews and a lack of familiarity with the structured forms may further hinder the use of structured interviews. Structured clinical judgement outperforms the unstructured risk assessment in recidivism as well (Wertz et al., 2023).

Instead of developing a confirmatory elaboration reliant on Type II processes, the same could be applied to considering alternative hypotheses (Galinsky & Ku, 2004). The findings suggest that perspective-taking builds off egocentric biases in improving the outgroup evaluations. Those with low self-esteem evaluated an outgroup less positively than those with high self-esteem. Considering "the alternative" not only requires the effort of mentalizing, but self-confidence in overcoming behaviour evasive about critical self-examination.

Supervision groups could benefit from performance checklists (as often used in cognitive behaviour training) and roles assigned to people to evaluate alternative hypotheses, track a process for the alternative, backup solutions or to steelman arguments. A clinician might keep an alternative or parallel cognitive conceptualization diagram with a different patient history interpretation and outcome prediction. A clinician of the psychodynamic background might conceptualize a case differently, to offer converging or diverging evidence regarding a treatment strategy or a diagnosis.

Research in persuasion and radicalization suggests that inoculation techniques that provide active learning in countering biased messages and exposing one's own vulnerabilities increase the ability in identifying these vulnerabilities (Saleh et al., 2024).

A step decoupling from Type I processing might be a critical feature (Croskerry et al., 2013). Debiasing could rely on executive override with forcing strategies or suppressing impulsiveness. It might be useful to ask oneself if a diagnosis was suggested by another person (premature closure, framing), or if there is a reason a patient is liked or disliked (affect), or if must-not-miss diagnoses have been ruled out effectively (overconfidence, anchoring, confirmation bias). Distractions and interruptions during evaluation, fatigue, lack of sleep and overload should contribute to all biases. Algorithmic approaches can include various steps, from awareness, through motivation and capability to correct, to application.

Unfortunately, debiasing may also backfire. "Listing many counterfactual thoughts was experienced as difficult" (Sanna et al., 2002, p. 497), consistently increasing the hindsight bias. On the contrary, when participants listed several thoughts about how an event might have turned out (experienced as an easy task), no significant hindsight effects were obtained.

Psychoeducation on biases is one of the few bias management strategies that have received good empirical support (Jenkins & Youngstrom, 2016).

Brief debiasing interventions show promise in enhancing judgement accuracy and reducing decision making errors. Technological debiasing also shows promise for real-world applications, specifically important for informing the design of high stakes work systems (Dharanikota et al., 2024). Training should also be representative of a real-world context where considerable cognitive load hampers the application of these skills (Thirsk et al., 2022).

Aside from the strategies designed for professional problem solving, laypeople could benefit from educational strategies and active learning to counter bias in future.

Dealing with Misinformation

The effects of misinformation on society are detrimental and often underestimated (Compton et al., 2021; Ecker, Roozenbeek, et al., 2024; Ecker, Tay, et al., 2024; Lewandowsky et al., 2024). Misinformation may be legitimized by invoking authoritative sources as well (Haupt et al., 2021; van der Linden et al., 2017).

This problem stands along with discrediting attack strategies against experts, which reduces the perceptions of credibility, resulting in a reduced likelihood of acting regarding a topic (Hughes et al., 2014). The dissemination of opinions that contradict expert consensus is frequently piloted by self-promoted dissenters, often financially and politically motivated, whose views do not stand up to the rigours of research and peer review (Lewandowsky et al., 2024).

Should people experience identity threat upon being exposed to a framing of an issue as fundamental to its scientific status, they may be less receptive to the opposing/critical view (Hardy et al., 2019). An argument would be that it is important that authoritative bodies first do not resist critical reexamination of practice, and then communicate with the public to debunk psychology misperceptions. The Society of Clinical Psychology (APA Division 12) offers a list of evidence-based treatments. Kent A. Clark Center for Global Markets (University of Chicago) surveys economists to convey expert opinions about diverse sets of pressing issues.

Misperceptions and distrust in science primarily derive from misleading and biased information (Iyengar & Massey, 2019). The misinformation effects linger despite the attempts at refutation (Ecker et al., 2014; Gordon et al., 2017; Walter & Tukachinsky, 2020).

Inoculation theory is a social psychological communication theory explaining how attitudes can be protected against persuasion. Originally intended for conferring resistance to propaganda, it has also been used in health communication (Banas & Rains, 2010; Compton, 2013). Inoculation protocols have proved to be effective in conferring resistance to online and

science misinformation, even when misinformation has already become rampant (Compton et al., 2021; Roozenbeek & van der Linden, 2019; van der Linden et al., 2017), as well as in the context of mental health and violence (Zhang, 2021). The effects of such refutational preemption decay less than mere scientific consensus messaging (Maertens et al., 2020).

Conclusion

Among undergraduates, early education involving the topics of psychological myths, good clinical practice and contemporary science should instil views favourable to treating clinical psychology and psychotherapy as science first.

This education should include refutational preemption to aid students in conferring resistance to junk science. This can minimize the effects stemming from exposure to misinformation and predatory mental health coursework unsanctioned by formal education or unsupported by research.

Clinicians should be wary of social influence related to decision making affected by groupthink. Also, they may underestimate the difference in precision between intuitive judgement and statistical prediction. Experience alone does not make one immune to biases, principally when whatever experience lacks adequate training. Explicated biases derive from representativeness, availability and anchoring heuristics.

Psychoeducation on biases and brief debiasing interventions could enhance judgement accuracy. This training should consider how people apply such skills in high-stakes conditions, under high load and temporal constraints.

Subpar decision making should not be dismissed simply as another person's lack of competence. Flaws in practice also stem from regulations, institutional inertia, norms in a certain field, specific training and organization of teams. In turn, market offering and demands could be moderated by better science communication, debunking and preemption confronting popular psychological misperceptions, as facilitated by authoritative psychological science organizations or universities.

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Kliničko odlučivanje i mentalno zdravlje: o izazovima u proceni, lažnoj nauci i društvenim trendovima

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Kognitivne pristrasnosti su pervazivne u rasuđivanju i odlučivanju. Uprkos svakodnevnoj koristi, pristrasnosti mogu negativno uticati na kliničku procenu i voditi greškama u odlučivanju. Svi profesionalci i segmenti društva su im podložni, dok ljudi potcenjuju sopstvenu podložnost ovim greškama. U mentalnom zdravlju, statističko predviđanje i empirijski robusna procena mogu smanjiti te neželjene efekte. Ovaj rad sagledava pristrasnosti u vezi sa osnovnim heuristicima: reprezentativnosti, dostupnosti i sidrenja. Povrh toga, objašnjava društveni uticaj na kliničko odlučivanje, uključujući grupno mišljenje. Iskustvo bez adekvatne obuke može pogoršati odlučivanje preteranim samopouzdanjem. Između ostalog, psihoedukacija na temu pristrasnosti nudi potencijalna rešenja. Dodatno, pokazano

je kako heuristici i pristrasnosti doprinose prijemčivosti popularnoj psihologiji, mitovima, pseudonauci, misinformacijama, alternativnoj medicini i radikalizaciji. Relativizacija dokaza i dezinformacije predstavljaju ključne izazove za demokratska društva i prihvatanje nauke. Naučna komunikacija može uticati na tržišnu ponudu raznih medijskih aspekata i trebalo bi da konsultuje socijalpsihološko istraživanje komunikacija plodonosno u borbi protiv dezinformacija, što može biti korisno i za studente i za laičku javnost.

Ključne reči: klinička procena, odlučivanje, kognitivne pristrasnosti, društveni uticaj, pseudonauka