1. J Clin Nurs. 2023 Nov;32(21-22):7730-7739. doi: 10.1111/jocn.16865. Epub 2023 Sep 3.

Relationship between emotional intelligence and job stressors of psychiatric nurses: A multi-centre cross-sectional study.

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AIM: To investigate the impact of socio-demographic factors and job stressors on the emotional intelligence of psychiatric nurses.
BACKGROUND: Emotional intelligence plays a crucial role in enabling nurses to effectively manage their own emotions, comprehend the emotions of others and assist individuals in dealing with diverse stressors. Nevertheless, a comprehensive conceptualization of the relationship between job stressors and emotional intelligence remains lacking.
DESIGN: This study employs a multi-centre cross-sectional design.
METHODS: A multi-centre cross-sectional survey involving 1083 registered nurses from 11 psychiatric hospitals across four provinces in China was conducted. Non-probability sampling was utilised. The survey encompassed assessments of nurse job stressors, emotional intelligence using a scale and socio-demographic characteristics using a questionnaire. A multiple linear regression model was applied to identify significant variables associated with emotional intelligence based on demographic attributes and various nurse job stressors. The study adhered to the STROBE checklist.
RESULTS: The findings revealed a noteworthy negative correlation between nurse job stressors and emotional intelligence. Socio-demographic factors and job stressors of certain nurses were able to predict emotional intelligence and its dimensions among psychiatric nurses, with percentages of 44.50%, 40.10%, 36.40%, 36.60% and 34.60%.
CONCLUSION: Providing emotional intelligence training for psychiatric nurses could enhance their capacity to cope effectively with workplace stress, particularly among younger nurses who engage in limited physical activities.
RELEVANCE TO CLINICAL PRACTICE: The analysis of the relationship between emotional intelligence and nurse job stressors could facilitate early detection and intervention by managers based on pertinent factors. This, in turn, could elevate the emotional intelligence level of psychiatric nurses.
NO PATIENT OR PUBLIC CONTRIBUTION: This study did not recruit participants, so details of participants were not be involved.

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2. Eur J Nutr. 2023 Sep;62(6):2375-2385. doi: 10.1007/s00394-023-03152-6. Epub 2023 Apr 27.

Association between urinary iodine excretion, genetic disposition and fluid intelligence in children, adolescents and young adults: the DONALD study.

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PURPOSE: Iodine deficiency increases the risk of cognitive impairment and delayed physical development in children. It is also associated with cognitive impairment in adults. Cognitive abilities are among the most inheritable behavioural traits. However, little is known about the consequences of insufficient postnatal iodine intake and whether the individual genetic disposition modifies the association between iodine intake and fluid intelligence in children and young adults.
METHODS: The cultural fair intelligence test was used to assess fluid intelligence in the participants of the DONALD study (n = 238; mean age, 16.5 [SD = 7.7] years). Urinary iodine excretion, a surrogate iodine intake marker, was measured in 24-h urine. Individual genetic disposition (n = 162) was assessed using a polygenic score, associated with general cognitive function. Linear regression analyses were conducted to determine whether Urinary iodine excretion was associated with fluid intelligence and whether this association was modified by individual genetic disposition.
RESULTS: Urinary iodine excretion above the age-specific estimated average requirement was associated with a five-point higher fluid intelligence score than that below the estimated average requirement (P = 0.02). The polygenic score was positively associated with the fluid intelligence score (β = 2.3; P = 0.03). Participants with a higher polygenic score had a higher fluid intelligence score.
CONCLUSION: Urinary iodine excretion above the estimated average requirement in childhood and adolescence is beneficial for fluid intelligence. In adults, fluid intelligence was positively associated with a polygenic score for general cognitive function. No evidence showed that the individual genetic disposition modifies the association between Urinary iodine excretion and fluid intelligence.

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3. Phys Life Rev. 2019 Dec;31:171-187. doi: 10.1016/j.plrev.2019.10.005. Epub 2019 Oct 23.

The neural code of intelligence: From correlation to causation.

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Research into the neural underpinning of intelligence has mainly adopted a construct perspective: trying to find structural and functional brain characteristics that would accommodate the psychological concept of g. Few attempts have been made to explain intelligence exclusively based on brain characteristics - the brain perspective. From a methodological viewpoint the brain intelligence relation has been studied by means of correlational and interventional studies. The later providing a causal elucidation of the brain - intelligence relation. The best neuro-anatomical predictor of intelligence is brain volume showing a modest positive correlation with g, explaining between 9 to 16% of variance. The most likely explanation was that larger brains, containing more neurons, have a greater computational power and in that way allow more complex cognitive processing. Correlations with brain surface, thickness, convolution and callosal shape showed less consistent patterns. The development of diffusion tensor imaging has allowed researchers to look also into the microstructure of brain tissue. Consistently observed was a positively correlation between white matter integrity and intelligence, supporting the idea that efficient information transfer between hemispheres and brain areas is crucial for higher intellectual competence. Based on functional studies of the brain intelligence relationship three theories have been put forward: the neural efficiency, the P-FIT and the multi demand (MD) system theory. On the other hand, The Network Neuroscience Theory of g, based on methods from mathematics, physics, and computer science, is an example for the brain perspective on neurobiological underpinning of intelligence. In this framework network flexibility and dynamics provide the foundation for general intelligence. With respect to intervention studies the most promising results have been achieved with noninvasive brain stimulation and behavioral training providing tentative support for findings put forward by the correlational approach. To date the best consensus based on the diversity of results reported would be that g is predominantly determined by lateral prefrontal attentional control of structured sensory episodes in posterior brain areas. The capacity of flexible transitions between these network states represents the essence of intelligence - g.

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PMID: 31706924 [Indexed for MEDLINE]

4. Psych J. 2021 Dec;10(6):944-946. doi: 10.1002/pchj.487. Epub 2021 Oct 6.

Careless responses and construct validity of Wong-Law Emotional Intelligence Scale.

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Careless response in the investigation of emotional intelligence has not been explicitly addressed. In a sample of 180 Spanish adults responding to the Wong-Law Emotional Intelligence Scale, a small prevalence (7.2%) was detected. The impact was small on the psychometric parameters, but they were less inflated, more realistic, and precise.

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5. J Am Coll Radiol. 2017 Nov;14(11):1476-1480. doi: 10.1016/j.jacr.2017.07.007. Epub 2017 Aug 19.

Artificial Intelligence: Threat or Boon to Radiologists?

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The development and integration of machine learning/artificial intelligence into routine clinical practice will significantly alter the current practice of radiology. Changes in reimbursement and practice patterns will also continue to affect radiology. But rather than being a significant threat to radiologists, we believe these changes, particularly machine learning/artificial intelligence, will be a boon to radiologists by increasing their value, efficiency, accuracy, and personal satisfaction.

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6. Br J Radiol. 2023 Oct;96(1150):20230213. doi: 10.1259/bjr.20230213. Epub 2023 Sep 12.

Artificial intelligence in mental healthcare: an overview and future perspectives.

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Artificial intelligence is disrupting the field of mental healthcare through applications in computational psychiatry, which leverages quantitative techniques to inform our understanding, detection, and treatment of mental

illnesses. This paper provides an overview of artificial intelligence technologies in modern mental healthcare and surveys recent advances made by researchers, focusing on the nascent field of digital psychiatry. We also consider the ethical implications of artificial intelligence playing a greater role in mental healthcare.

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Conflict of interest statement: Competing interestsAuthor declear no competing interests

7. AJNR Am J Neuroradiol. 2023 May;44(5):E21-E28. doi: 10.3174/ajnr.A7850. Epub 2023 Apr 20.

Critical Appraisal of Artificial Intelligence-Enabled Imaging Tools Using the Levels of Evidence System.

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Clinical adoption of an artificial intelligence-enabled imaging tool requires critical appraisal of its life cycle from development to implementation by using a systematic, standardized, and objective approach that can verify both its technical and clinical efficacy. Toward this concerted effort, the ASFNR/ASNR Artificial Intelligence Workshop Technology Working Group is proposing a hierarchal evaluation system based on the quality, type, and amount of scientific evidence that the artificial intelligence-enabled tool can demonstrate for each component of its life cycle. The current proposal is modeled after the levels of evidence in medicine, with the uppermost level of the hierarchy showing the strongest evidence for potential impact on patient care and health care outcomes. The intended goal of establishing an evidence-based evaluation system is to encourage transparency, foster an understanding of the creation of artificial intelligence tools and the artificial intelligence decision-making process, and to report the relevant data on the efficacy of artificial intelligence tools that are developed. The proposed system is an essential step in working toward a more formalized, clinically validated, and regulated framework for the safe and effective

deployment of artificial intelligence imaging applications that will be used in clinical practice.

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PMID: 37080722 [Indexed for MEDLINE]

8. Front Psychol. 2022 Feb 10;13:847383. doi: 10.3389/fpsyg.2022.847383. eCollection 2022.

The Relationship Between EFL Learners' Communication Apprehension, Self-Efficacy, and Emotional Intelligence.

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There is ample evidence that the success or failure of language learning is influenced by psychological processes in learners' minds. This review attempted to review the related studies on the relationship between English as a Foreign Language (EFL) learners' emotional intelligence, communication apprehension, and self-efficacy. Few studies have been done on the correlation between self-efficacy and emotional intelligence. A positive significant correlation between emotional intelligence and self-efficacy has been confirmed in the literature. Studies have shown that interpersonal relationships, self-awareness, problem-solving skills, self-adequacy, self-confidence, self-actualization, and stress tolerance can act as mediator variables in the correlation between self-efficacy and emotional intelligence among EFL learners. Moreover, the related studies have shown that emotional intelligence is significantly correlated with communication apprehension. The investigations have accentuated the mediating role of learners' willingness to communicate and academic achievement in the correlation between emotional intelligence and communication apprehension. The correlation between communication apprehension and self-efficacy has been verified in the related literature. Finally, the pedagogical implications are expanded to foster language learning quality. This review also provides some suggestions for further research to elucidate our viewpoints over emotional variables and their interactions with each other.

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PMID: 35222220

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9. Eur Heart J Digit Health. 2021 Oct 18;2(4):721-726. doi: 10.1093/ehjdh/ztab090. eCollection 2021 Dec.

Artificial intelligence in cardiology: the debate continues.

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In 1955, when John McCarthy and his colleagues proposed their first study of artificial intelligence, they suggested that 'every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it'. Whether that might ever be possible would depend on how we define intelligence, but what is indisputable is that new methods are needed to analyse and interpret the copious information provided by digital medical images, genomic databases, and biobanks. Technological advances have enabled applications of artificial intelligence (AI) including machine learning (ML) to be implemented into clinical practice, and their related scientific literature is exploding. Advocates argue enthusiastically that AI will transform many aspects of clinical cardiovascular medicine, while sceptics stress the importance of caution and the need for more evidence. This report summarizes the main opposing arguments that were presented in a debate at the 2021 Congress of the European Society of Cardiology. Artificial intelligence is an advanced analytical technique that should be considered when conventional statistical methods are insufficient, but testing a hypothesis or solving a clinical problem-not finding another application for AI-remains the most important objective. Artificial intelligence and ML methods should be transparent and interpretable, if they are to be approved by regulators and trusted to provide support for clinical decisions. Physicians need to understand AI methods and collaborate with engineers. Few applications have yet been shown to have a positive impact on clinical outcomes, so investment in research is essential.

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PMCID: PMC9708032
PMID: 36713089

10. Aging Ment Health. 2021 Feb;25(2):213-218. doi: 10.1080/13607863.2019.1673308. Epub 2019 Oct 17.

Examining emotional intelligence in older adults with chronic pain: a factor analysis approach.

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OBJECTIVE: The current study explored whether the three-factor structure of an emotional intelligence measure (attention to emotions, clarity in understanding emotions, and emotion regulation) developed in a sample of college students would replicate in a sample of older adults with chronic pain.
METHOD: Confirmatory and exploratory factor analyses were conducted to examine the factor structure of the 30-item Trait Meta-Mood Scale among 340 older adults with knee osteoarthritis.
RESULTS: Confirmatory factor analyses indicated that the original three-factor model of emotional intelligence did not fit well with the data for older adults. Exploratory factor analyses revealed a four-factor model of emotional intelligence: (1) confusion, (2) acceptance, (3) rejection, and (4) insight. Correlations between the original and new subscales were explored.
CONCLUSION: While the newly derived emotional intelligence scales resembled the original conceptualization of emotional intelligence proposed by Salovey, Mayer, Goldman, Turvey, and Palfai (1995), the current study highlights the differences in emotional intelligence likely representative of older adults with chronic pain.

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PMID: 31621378 [Indexed for MEDLINE]

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11. J Prof Nurs. 2018 Sep-Oct;34(5):357-363. doi: 10.1016/j.profnurs.2017.12.007. Epub 2017 Dec 14.

Visual intelligence education as an innovative interdisciplinary approach for advancing communication and collaboration skills in nursing practice.

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BACKGROUND: Recognizing the relationship of keen observation to communication, critical thinking, and leadership in evidence-based literature, educators have expanded the use of art museums to augment visual intelligence skills. The purpose of this pilot intervention was to evaluate an innovative, interdisciplinary approach for integrating visual intelligence skills into an advanced communications and collaboration course.
METHOD: Collaborating with museum educators, the intervention for doctoral

students was conducted at the National Gallery of Art. The aims were to explore and evaluate observation skills, use of intentional language in communication, impact of visual intelligence on perception, and role of visual intelligence with empathy.
RESULTS: Descriptive and nonparametric statistics highlighted significant differences in pre- to post-assessment scores related to the expansiveness of intentional visual observation, alternate views, perception and empathy, suggesting that visual intelligence training's impact can be identified and evaluated.
CONCLUSION: Healthcare providers' ability to communicate effectively, including observing, listening, explaining, and empathizing, significantly impacts healthcare outcomes and patient perceptions of satisfaction. All educators have access to a variety of two-dimensional art and the opportunity to implement interdisciplinary learning experiences to enhance visual intelligence. The intervention was considered a successful new learning modality for advanced communications skills and was integrated into the curriculum.

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PMID: 30243692 [Indexed for MEDLINE]

12. Front Psychol. 2016 Aug 17;7:1182. doi: 10.3389/fpsyg.2016.01182. eCollection 2016.

Promoting Well-Being: The Contribution of Emotional Intelligence.

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Adopting a primary prevention perspective, this study examines competencies with the potential to enhance well-being and performance among future workers. More specifically, the contributions of ability-based and trait models of emotional intelligence (EI), assessed through well-established measures, to indices of hedonic and eudaimonic well-being were examined for a sample of 157 Italian high school students. The Mayer-Salovey-Caruso Emotional Intelligence Test was used to assess ability-based EI, the Bar-On Emotional Intelligence Inventory and the Trait Emotional Intelligence Questionnaire were used to assess trait EI, the Positive and Negative Affect Scale and the Satisfaction With Life Scale were used to assess hedonic well-being, and the Meaningful Life Measure was used to assess eudaimonic well-being. The results highlight the contributions of trait EI in explaining both hedonic and eudaimonic well-being, after controlling for the effects of fluid intelligence and personality traits. Implications for further research and intervention regarding future workers are discussed.

DOI: 10.3389/fpsyg.2016.01182
PMCID: PMC4987330
PMID: 27582713

13. Psychol Sci. 2016 Jun;27(6):859-69. doi: 10.1177/0956797616639727. Epub 2016 Apr
25.

Parents’ Views of Failure Predict Children’s Fixed and Growth Intelligence

Mind-Sets.

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Erratum in
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Children's intelligence mind-sets (i.e., their beliefs about whether intelligence is fixed or malleable) robustly influence their motivation and learning. Yet, surprisingly, research has not linked parents' intelligence mind-sets to their children's. We tested the hypothesis that a different belief of parents-their failure mind-sets-may be more visible to children and therefore more prominent in shaping their beliefs. In Study 1, we found that parents can view failure as debilitating or enhancing, and that these failure mind-sets predict parenting practices and, in turn, children's intelligence mind-sets. Study 2 probed more deeply into how parents display failure mind-sets. In Study 3a, we found that children can indeed accurately perceive their parents' failure mind-sets but not their parents' intelligence mind-sets. Study 3b showed that children's perceptions of their parents' failure mind-sets also predicted their own intelligence mind-sets. Finally, Study 4 showed a causal effect of parents' failure mind-sets on their responses to their children's hypothetical failure. Overall, parents who see failure as debilitating focus on their children's performance and ability rather than on their children's learning, and their children, in turn, tend to believe that intelligence is fixed rather than malleable.

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14. Sci Rep. 2015 Nov 26;5:17159. doi: 10.1038/srep17159.

Nap sleep spindle correlates of intelligence.

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Sleep spindles are thalamocortical oscillations in non-rapid eye movement (NREM) sleep, that play an important role in sleep-related neuroplasticity and offline information processing. Several studies with full-night sleep recordings have

reported a positive association between sleep spindles and fluid intelligence scores, however more recently it has been shown that only few sleep spindle measures correlate with intelligence in females, and none in males. Sleep spindle regulation underlies a circadian rhythm, however the association between spindles and intelligence has not been investigated in daytime nap sleep so far. In a sample of 86 healthy male human subjects, we investigated the correlation between fluid intelligence and sleep spindle parameters in an afternoon nap of 100 minutes. Mean sleep spindle length, amplitude and density were computed for each subject and for each derivation for both slow and fast spindles. A positive association was found between intelligence and slow spindle duration, but not any other sleep spindle parameter. As a positive correlation between intelligence and slow sleep spindle duration in full-night polysomnography has only been reported in females but not males, our results suggest that the association between intelligence and sleep spindles is more complex than previously assumed.

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PMID: 26607963 [Indexed for MEDLINE]

15. Entropy (Basel). 2022 May 16;24(5):710. doi: 10.3390/e24050710.

Biology, Buddhism, and AI: Care as the Driver of Intelligence.

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Intelligence is a central feature of human beings' primary and interpersonal experience. Understanding how intelligence originated and scaled during evolution is a key challenge for modern biology. Some of the most important approaches to understanding intelligence are the ongoing efforts to build new intelligences in computer science (AI) and bioengineering. However, progress has been stymied by a lack of multidisciplinary consensus on what is central about intelligence regardless of the details of its material composition or origin (evolved vs. engineered). We show that Buddhist concepts offer a unique perspective and facilitate a consilience of biology, cognitive science, and computer science toward understanding intelligence in truly diverse embodiments. In coming decades, chimeric and bioengineering technologies will produce a wide variety of novel beings that look nothing like familiar natural life forms; how shall we gauge their moral responsibility and our own moral obligations toward them, without the familiar touchstones of standard evolved forms as comparison? Such decisions cannot be based on what the agent is made of or how much design

vs. natural evolution was involved in their origin. We propose that the scope of our potential relationship with, and so also our moral duty toward, any being can be considered in the light of Care-a robust, practical, and dynamic lynchpin that formalizes the concepts of goal-directedness, stress, and the scaling of intelligence; it provides a rubric that, unlike other current concepts, is likely to not only survive but thrive in the coming advances of AI and bioengineering. We review relevant concepts in basal cognition and Buddhist thought, focusing on the size of an agent's goal space (its cognitive light cone) as an invariant that tightly links intelligence and compassion. Implications range across interpersonal psychology, regenerative medicine, and machine learning. The Bodhisattva's vow ("for the sake of all sentient life, I shall achieve awakening") is a practical design principle for advancing intelligence in our novel creations and in ourselves.

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PMCID: PMC9140411
PMID: 35626593

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16. Scand J Public Health. 2021 Jun;49(4):411-418. doi: 10.1177/1403494820944719. Epub 2020 Sep 11.

Intelligence, alcohol consumption, and adverse consequences. A study of young Norwegian men.

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AIMS: Research suggests that intelligence is positively related to alcohol consumption. However, some studies of people born around 1950, particularly from Sweden, have reported that higher intelligence is associated with lower consumption and fewer alcohol-related problems. We investigated the relationships between intelligence, alcohol consumption, and adverse consequences of drinking in young men from Norway (a neighboring Scandinavian country) born in the late 1970s.
METHODS: This analysis was based on the population-based Young in Norway Longitudinal Study. Our sample included young men who had been followed from their mid-teens until their late 20s (n = 1126). Measures included self-reported alcohol consumption/intoxication, alcohol use disorders (AUDIT), and a scale measuring adverse consequences of drinking. Controls included family background, parental bonding, and parents' and peers' drinking. Intelligence test scores-scaled in 9 "stanines" (population mean of 5 and standard deviation of 2)-were taken from conscription assessment.
RESULTS: Men with higher intelligence scores reported average drinking frequency and slightly fewer adverse consequences in their early 20s. In their late 20s, they reported more frequent drinking than men with lower intelligence scores (0.30 more occasions per week, per stanine, age adjusted; 95% CI: 0.12 to 0.49). Intelligence was not associated with intoxication frequency at any age and did not moderate the relationships between drinking frequency and adverse consequences.
CONCLUSIONS: Our results suggest that the relationship between intelligence and drinking frequency is age dependent. Discrepancies with earlier findings from Sweden may be driven by changes in drinking patterns.

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17. Psychiatry Res. 2018 Oct;268:238-242. doi: 10.1016/j.psychres.2018.07.029. Epub 2018 Jul 19.

A genome-wide pathway enrichment analysis identifies brain region related biological pathways associated with intelligence.

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Intelligence is an important quantitative trait associated with human cognitive ability. The genetic basis of intelligence remains unclear now. Utilizing the latest chromosomal enhancer maps of brain regions, we explored brain region related biological pathways associated with intelligence. Summary data was derived from a large scale genome-wide association study (GWAS) of human, involving 78,308 unrelated individuals from 13 cohorts. The chromosomal enhancer maps of 8 brain regions were then aligned with the GWAS summary data to obtain the association testing results of enhancer regions for intelligence. Gene set enrichment analysis was then conducted to identify the biological pathways associated with intelligence for 8 brain regions, respectively. A total of 178 KEGG pathways was analyzed in this study. We detected multiple biological pathways showing cross brain regions or brain region specific association signals for human intelligence. For instance, KEGG_SYSTEMIC_LUPUS_ERYTHEMATOSUS pathway presented association signals for intelligence across 8 brain regions (all P value < 0.01). KEGG_GLYCOSPHINGOLIPID_BIOSYNTHESIS_GANGLIO_SERIES was detected for 5 brain regions. We also identified several brain region specific pathways, such as AMINO_SUGAR_AND_NUCLEOTIDE_SUGAR_METABOLISM for Germinal Matrix (P value = 0.009) and FRUCTOSE_AND_MANNOSE_METABOLISM for Anterior Caudate (P value = 0.005). Our study results provided novel clues for understanding the genetic mechanism of intelligence.

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18. Front Psychol. 2023 Mar 15;14:1109569. doi: 10.3389/fpsyg.2023.1109569. eCollection 2023.

Relationship between emotional intelligence and learning motivation among college students during the COVID-19 pandemic: A serial mediation model.

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The vital influence of emotional intelligence on college students' learning motivation has received considerable attention. This study analyzed not only the relationship between emotional intelligence and college students' learning motivation during the COVID-19 pandemic, but also the serial mediating roles that self-efficacy and social support play in this relationship. Using a cross-sectional survey design, we collected data from 336 college students across 30 provinces in China, using four well-established scales measuring emotional intelligence, learning motivation, self-efficacy, and social support. We analyzed the mediating effects using the Bootstrap method. The results showed that emotional intelligence positively predicted learning motivation, and that self-efficacy and social support played serial mediating roles between emotional intelligence and learning motivation. This finding suggests the need for interventions to help college students develop emotional intelligence during the COVID-19 pandemic, and that fostering college students' self-efficacy and providing multiple social supports would help improve their motivation and academic performance.

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PMID: 37008860

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19. Eur J Investig Health Psychol Educ. 2022 Jun 21;12(7):666-676. doi: 10.3390/ejihpe12070050.

The Mediating Role of Job Satisfaction in the Relationship between Emotional Intelligence and Life Satisfaction among Teachers during the COVID-19 Pandemic.

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This study examines the indirect effect of job satisfaction on the relationship between emotional intelligence and life satisfaction among teachers during the second wave of the COVID-19 pandemic in Poland. A sample of 322 teachers aged 23-71 (M = 45.37, SD = 8.99) participated in a cross-sectional online survey. The online survey (Google form) contained some demographic information and standardized psychological questionnaires: the Multivariate Emotional Intelligence Scale (MEIS) for measuring emotional intelligence, the Minnesota Satisfaction Questionnaire (MSQ)-a short form for job satisfaction assessment, and the Life Satisfaction Scale (SWLS). Emotional intelligence is a significant

positive predictor of job satisfaction and life satisfaction, and job satisfaction is a strong positive predictor of life satisfaction. Job satisfaction partly mediates the relationship between emotional intelligence and life satisfaction. To maintain the well-being of teachers during a pandemic, schools should implement training to improve emotional intelligence and increase job satisfaction by supporting distance e-learning among teachers.

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PMID: 35877450

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Supporting Artificial Social Intelligence With Theory of Mind.

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In this paper, we discuss the development of artificial theory of mind as foundational to an agent's ability to collaborate with human team members. Agents imbued with artificial social intelligence will require various capabilities to gather the social data needed to inform an artificial theory of mind of their human counterparts. We draw from social signals theorizing and discuss a framework to guide consideration of core features of artificial social intelligence. We discuss how human social intelligence, and the development of theory of mind, can contribute to the development of artificial social intelligence by forming a foundation on which to help agents model, interpret and predict the behaviors and mental states of humans to support human-agent interaction. Artificial social intelligence will need the processing capabilities to perceive, interpret, and generate combinations of social cues to operate within a human-agent team. Artificial Theory of Mind affords a structure by which a socially intelligent agent could be imbued with the ability to model their human counterparts and engage in effective human-agent interaction. Further, modeling Artificial Theory of Mind can be used by an ASI to support transparent communication with humans, improving trust in agents, so that they may better predict future system behavior based on their understanding of and support trust in artificial socially intelligent agents.

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21. Clin Nurs Res. 2023 Feb;32(2):393-405. doi: 10.1177/10547738221074065. Epub

2022
Feb 3.

Effects of Emotional Intelligence Training on Symptom Severity in Patients With Depressive Disorders.

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Depressive disorders affect individual's thoughts, feelings, and social interactions. Enhancing emotional competencies of depressed individuals may alleviate their suffering. Purpose: This study aimed to compare depression severity and emotional intelligence before and after emotional intelligence training in patients with depressive disorders. Methods: A nonrandomized trial (one-group pretest-posttest) research design was applied to 69 patients purposively recruited. The patients' sociodemographic and clinical data were collected. The Beck Depression Inventory-II and Trait Emotional Intelligence Questionnaire-Short Form were completed before and immediately after an 8-weeks of focused weekly group training. Results: A significant improvement in the scores of well-being, self-control, emotionality, and sociability; total emotional intelligence scores; and total depression scores was perceived after training (Z = 5.601, 4.398, 5.686, and 3.516; 4.943; and 2.387, respectively). Implications for Nursing Practice: As emotional intelligence can be learned; it may be a target for interventions when dealing with patients with depressive disorders by strengthening their emotional intelligence.

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PMID: 35114809 [Indexed for MEDLINE]

22. BMC Med Educ. 2016 Feb 11;16:58. doi: 10.1186/s12909-016-0574-8.

A survey of mindset theories of intelligence and medical error self-reporting among pediatric housestaff and faculty.

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BACKGROUND: Intelligence theory research has illustrated that people hold either "fixed" (intelligence is immutable) or "growth" (intelligence can be improved) mindsets and that these views may affect how people learn throughout their lifetime. Little is known about the mindsets of physicians, and how mindset may affect their lifetime learning and integration of feedback. Our objective was to determine if pediatric physicians are of the "fixed" or "growth" mindset and whether individual mindset affects perception of medical error reporting.
METHODS: We sent an anonymous electronic survey to pediatric residents and attending pediatricians at a tertiary care pediatric hospital. Respondents

completed the "Theories of Intelligence Inventory" which classifies individuals on a 6-point scale ranging from 1 (Fixed Mindset) to 6 (Growth Mindset). Subsequent questions collected data on respondents' recall of medical errors by self or others.
RESULTS: We received 176/349 responses (50 %). Participants were equally distributed between mindsets with 84 (49 %) classified as "fixed" and 86 (51 %) as "growth". Residents, fellows and attendings did not differ in terms of mindset. Mindset did not correlate with the small number of reported medical errors.
CONCLUSIONS: There is no dominant theory of intelligence (mindset) amongst pediatric physicians. The distribution is similar to that seen in the general population. Mindset did not correlate with error reports.

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PMCID: PMC4751661
PMID: 26868925 [Indexed for MEDLINE]

23. Aging Ment Health. 2013;17(5):527-34. doi: 10.1080/13607863.2012.758235. Epub 2013 Jan 21.

Role of theory of mind and executive function in explaining social intelligence: a structural equation modeling approach.

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OBJECTIVES: Social intelligence is the ability to understand others and the social context effectively and thus to interact with people successfully. Research has suggested that the theory of mind (ToM) and executive function may play important roles in explaining social intelligence. The specific aim of the present study was to test with structural equation modeling (SEM) the hypothesis that performance on ToM tasks is more associated with social intelligence in the elderly than is performance on executive functions.
METHODS: One hundred and seventy-seven participants (age 56-96) completed ToM, executive function, and other basic cognition tasks, and were rated with social intelligence scales.
RESULTS: The SEM results showed that ToM and executive function were strongly correlated (0.54); however, only the path coefficient from ToM to social intelligence, and not from executive function, was significant (0.37).
CONCLUSIONS: ToM performance, but not executive function, was strongly correlated with social intelligence among elderly individuals. ToM and executive function might play different roles in social behavior during normal aging; however, based on the present results, it is possible that ToM might play an important role in social intelligence.

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PMID: 23336440 [Indexed for MEDLINE]

24. Acta Stomatol Croat. 2023 Mar;57(1):70-84. doi: 10.15644/asc57/1/8.

Artificial Intelligence in Medicine and Dentistry.

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INTRODUCTION: Artificial intelligence has been applied in various fields throughout history, but its integration into daily life is more recent. The first applications of AI were primarily in academia and government research institutions, but as technology has advanced, AI has also been applied in industry, commerce, medicine and dentistry.
OBJECTIVE: Considering that the possibilities of applying artificial intelligence are developing rapidly and that this field is one of the areas with the greatest increase in the number of newly published articles, the aim of this paper was to provide an overview of the literature and to give an insight into the possibilities of applying artificial intelligence in medicine and dentistry. In addition, the aim was to discuss its advantages and disadvantages.
CONCLUSION: The possibilities of applying artificial intelligence to medicine and dentistry are just being discovered. Artificial intelligence will greatly contribute to developments in medicine and dentistry, as it is a tool that enables development and progress, especially in terms of personalized healthcare that will lead to much better treatment outcomes.

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PMID: 37288152

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Artificial intelligence in cancer target identification and drug discovery.

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Artificial intelligence is an advanced method to identify novel anticancer targets and discover novel drugs from biology networks because the networks can effectively preserve and quantify the interaction between components of cell systems underlying human diseases such as cancer. Here, we review and discuss how to employ artificial intelligence approaches to identify novel anticancer targets and discover drugs. First, we describe the scope of artificial intelligence biology analysis for novel anticancer target investigations. Second, we review and discuss the basic principles and theory of commonly used network-based and machine learning-based artificial intelligence algorithms. Finally, we showcase the applications of artificial intelligence approaches in cancer target identification and drug discovery. Taken together, the artificial intelligence models have provided us with a quantitative framework to study the relationship between network characteristics and cancer, thereby leading to the identification of potential anticancer targets and the discovery of novel drug candidates.

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26. J Adolesc. 2017 Aug;59:45-50. doi: 10.1016/j.adolescence.2017.05.012. Epub 2017 May 26.

The mediating role of social skills and sensation seeking in the relationship between trait emotional intelligence and school adjustment in adolescents.

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Drawing upon a sample of 400 female high school students in Tehran, Iran, the present study examines the mediating role of social skills and sensation seeking in the relationship between trait emotional intelligence and school adjustment in adolescent girls. Statistical analysis revealed positive correlations between trait emotional intelligence and school adjustment; trait emotional intelligence and social skills; and social skills and school adjustment. The study also revealed a negative correlation between trait emotional intelligence and sensation seeking, as well as sensation seeking and school adjustment. In addition, the data provided a good fit to the hypothesized model of the mediating role of social skills and sensation seeking in the relationship between trait emotional intelligence and school adjustment.

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PMID: 28554077 [Indexed for MEDLINE]

27. Iran J Psychiatry. 2013 Oct;8(4):165-7.

The relationship of general health, hardiness and spiritual intelligence relationship in Iranian nurses.

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OBJECTIVE: Nursing is one of the stressful jobs that affect nurse's well-being. The aim of this study was to assess the relationship between spiritual intelligence, hardiness and well-being among Iranian nurses.
METHODS: Samples of this cross- sectional study selected by Randomized stratified sampling, 125 nurses who have been working in different wards of Bushehr university hospitals. Data were collected using spiritual intelligence, hardiness, well-being and demographic characteristics questionnaires. Correlation, t-test, ANOVA, Tukey and regression analysis were applied.
RESULTS: The results revealed a significant relationship between spiritual intelligence and hardiness, spiritual intelligence and well-being, Hardiness and well-being. It also showed that among the demographic characteristics (age, gender, working ward, marital status, job experiences, and education) working ward significantly correlated with spiritual intelligence.
CONCLUSION: Improvement of spiritual intelligence and reinforcement of hardiness could help increase the well-being of nurses.

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PMID: 25628709

28. Brain Struct Funct. 2014 Mar;219(2):485-94. doi: 10.1007/s00429-013-0512-z. Epub 2013 Feb 8.

Architecture of fluid intelligence and working memory revealed by lesion mapping.

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Although cognitive neuroscience has made valuable progress in understanding the role of the prefrontal cortex in human intelligence, the functional networks that support adaptive behavior and novel problem solving remain to be well characterized. Here, we studied 158 human brain lesion patients to investigate the cognitive and neural foundations of key competencies for fluid intelligence and working memory. We administered a battery of neuropsychological tests, including the Wechsler Adult Intelligence Scale (WAIS) and the N-Back task.

Latent variable modeling was applied to obtain error-free scores of fluid intelligence and working memory, followed by voxel-based lesion-symptom mapping to elucidate their neural substrates. The observed latent variable modeling and lesion results support an integrative framework for understanding the architecture of fluid intelligence and working memory and make specific recommendations for the interpretation and application of the WAIS and N-Back task to the study of fluid intelligence in health and disease.

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PMID: 23392844 [Indexed for MEDLINE]

29. Int J Psychol Res (Medellin). 2020 Jan-Jul;13(1):29-39. doi: 10.21500/20112084.4231.

Inhibitory Processes and Fluid Intelligence: a Performance at Early Years of Schooling.

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Inhibition constitutes one of the main executive functions and it is important to more complex skills such as fluid intelligence. Actually, there is an agreement on distinguishing three inhibitory types: perceptual, cognitive and response inhibition. Several studies show the differential engagement of these inhibitory types in different skills. However, there is no registered evidence about the differential relation of inhibitory types with fluid intelligence. This inquiry is especially important during the first school years, since in this stage, inhibitory processes would already be differentiated, and inhibitory processes and fluid intelligence are linked to the performance of children in the school setting. For these reasons, the goal of this work is to study the relation and contribution of perceptual, cognitive, and response inhibition with fluid intelligence, in children in the first years of primary school. For that purpose, a sample of children from six to eight years old (N = 178) was tested with a perceptual inhibition task (perception of similarities and differences task); a cognitive inhibition task (proactive interference task); a response inhibition task (stop signal task); and a fluid intelligence task (progressive matrices task). We observed significant correlations between perceptual and response inhibition and fluid intelligence (controlling for age), but only perceptual inhibition explains significantly part of the performance in the fluid intelligence task. This study provides data about the specific contribution, during childhood, of an inhibitory type to fluid intelligence and contributes empirical evidence in support of the non-unitary approach of inhibition.

Publisher: La inhibición constituye una de las principales funciones ejecutivas, siendo fundamental para otras habilidades más complejas, tales como la inteligencia fluida. Actualmente, existe acuerdo en distinguir tres procesos inhibitorios: inhibición perceptual, cognitiva y de la respuesta. Distintos estudios muestran que los tipos inhibitorios participan de manera diferencial en diversas habilidades, aunque no se registra evidencia sobre la relación diferencial de los mismos con la inteligencia fluida. Su estudio es especialmente importante durante los primeros años de la escuela primaria, donde

los procesos inhibitorios estarían diferenciados y tanto ellos como la inteligencia fluida se vinculan con el desempeño de los niños en el ámbito escolar. Por estos motivos, este trabajo se propuso analizar la relación y contribución de la inhibición perceptual, cognitiva y de la respuesta con la inteligencia fluida en niños en los primeros años de la escuela primaria. Para ello, una muestra de niños de seis a ocho años de edad (N = 178) fue evaluada con una tarea de inhibición perceptual (test de percepción de diferencias y similitudes), una tarea de inhibición cognitiva (tarea de interferencia proactiva), una tarea de inhibición de la respuesta (basada en el paradigma stop signal) y una tarea de inteligencia fluida (test de matrices progresivas). Se encontraron correlaciones significativas entre la inhibición perceptual y de la respuesta con la inteligencia fluida (controlando la edad), pero solo la inhibición perceptual explica de manera significativa parte del rendimiento en la tarea de inteligencia fluida. Este estudio aporta datos específicos sobre la contribución de un tipo inhibitorio a la inteligencia fluida durante la niñez, así como evidencia empírica a favor del modelo no-unitario de la inhibición.

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Understanding Collective Intelligence: Investigating the Role of Collective Memory, Attention, and Reasoning Processes.

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As society has come to rely on groups and technology to address many of its most challenging problems, there is a growing need to understand how technology-enabled, distributed, and dynamic collectives can be designed to solve a wide range of problems over time in the face of complex and changing environmental conditions-an ability we define as "collective intelligence." We describe recent research on the Transaction Systems Model of Collective Intelligence (TSM-CI) that integrates literature from diverse areas of psychology to conceptualize the underpinnings of collective intelligence. The TSM-CI articulates the development and mutual adaptation of transactive memory, transactive attention, and transactive reasoning systems that together support the emergence and maintenance of collective intelligence. We also review related research on computational indicators of transactive-system functioning based on collaborative process behaviors that enable agent-based teammates to diagnose and potentially intervene to address developing issues. We conclude by discussing future directions in developing the TSM-CI to support research on developing collective human-machine intelligence and to identify ways to design technology to enhance it.

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31. Front Psychol. 2022 Aug 2;13:944174. doi: 10.3389/fpsyg.2022.944174. eCollection 2022.

Gazing the dusty mirror: Joint effect of narcissism and sadism on workplace incivility via indirect effect of paranoia, antagonism, and emotional intelligence.

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Workplace productivity is badly affected by many negative factors such as narcissism, and sadism. In addition, paranoia and antagonism play an important role in increasing workplace incivility. Through emotional intelligence, such negative behaviors could be addressed by managers and their junior colleagues. The current study aims to investigate the parallel mediating role of paranoia, antagonism, and emotional intelligence on the relationship between narcissism, sadism, and workplace incivility. A survey approach was used. Primary data was collected in PLS-SEM. The population of the study was all faculty members in higher education institutions in the Khyber Pakhtunkhwa (Pakistan) region. A measurement model and structural model were developed. The measurement model demonstrated that convergent and discriminant validities were established. The structural model's findings revealed that narcissism, antagonism, and emotional intelligence were not mediated between narcissism and workplace incivility. Similarly, emotional intelligence did not play any mediating role between sadism and workplace incivility. This implied that emotional intelligence has no role in decreasing or reducing workplace uncivil behavior.

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General intelligence disentangled via a generality metric for natural and artificial intelligence.

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Success in all sorts of situations is the most classical interpretation of general intelligence. Under limited resources, however, the capability of an agent must necessarily be limited too, and generality needs to be understood as comprehensive performance up to a level of difficulty. The degree of generality then refers to the way an agent's capability is distributed as a function of task difficulty. This dissects the notion of general intelligence into two non-populational measures, generality and capability, which we apply to individuals and groups of humans, other animals and AI systems, on several cognitive and perceptual tests. Our results indicate that generality and capability can decouple at the individual level: very specialised agents can show high capability and vice versa. The metrics also decouple at the population level, and we rarely see diminishing returns in generality for those groups of high capability. We relate the individual measure of generality to traditional notions of general intelligence and cognitive efficiency in humans, collectives, non-human animals and machines. The choice of the difficulty function now plays a prominent role in this new conception of generality, which brings a quantitative tool for shedding light on long-standing questions about the evolution of general intelligence and the evaluation of progress in Artificial General Intelligence.

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PMID: 34819537

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Personal Values in Relation to Risk Intelligence: Evidence from a Multi-Mediation Model.

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In a risk society, personal values can be important resources, useful for managing uncertainty and guiding people in the perception of risk. The goal of

this article is to explore the relationship between risk intelligence and personal values. The participants were 731 Italian adults aged between 18 and 65 years (M = 30.25; DS = 10.71). The survey was composed of the following measures: Subjective Risk Intelligence Scale and Portrait Values Questionnaire. Data analyses have found significant relationships between some types of personal values and risk intelligence: subjective risk intelligence is negatively related to conservation and positively related to openness to change and self-transcendence, but it was not related to self-enhancement. Furthermore, values of openness to change and self-transcendence mediate the relationship between age and subjective risk intelligence, while conservation values and self-enhancement values did not mediate the same relationship. Implication for practice and future research will be discussed.

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PMID: 34436099

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34. Psychon Bull Rev. 2021 Aug;28(4):1423-1432. doi: 10.3758/s13423-021-01909-w. Epub 2021 Apr 13.

Intelligence test items varying in capacity demands cannot be used to test the causality of working memory capacity for fluid intelligence.

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There is a strong relationship between fluid intelligence and working memory capacity (WMC). Yet, the cognitive mechanisms underlying this relationship remain elusive. The capacity hypothesis states that this relationship is due to limitations in the amount of information that can be stored and held active in working memory. Previous research aimed at testing the capacity hypothesis assumed that it implies stronger relationships of intelligence test performance with WMC for test items with higher capacity demands. The present article addresses this assumption through simulations of three theoretical models implementing the capacity hypothesis while systematically varying different psychometric variables. The results show that almost any relation between the capacity demands of items and their correlation with WMC can be obtained. Therefore, the assumption made by previous studies does not hold: The capacity hypothesis does not imply stronger correlations of WMC and intelligence test items with higher capacity demands. Items varying in capacity demands cannot be used to test the causality of WMC (or any other latent variable) for fluid intelligence.

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PMID: 33851371 [Indexed for MEDLINE]

35. Paediatr Anaesth. 2020 Mar;30(3):264-268. doi: 10.1111/pan.13792. Epub 2020 Jan 2.

Artificial intelligence, machine learning and the pediatric airway.

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Artificial intelligence and machine learning are rapidly expanding fields with increasing relevance in anesthesia and, in particular, airway management. The ability of artificial intelligence and machine learning algorithms to recognize patterns from large volumes of complex data makes them attractive for use in pediatric anesthesia airway management. The purpose of this review is to introduce artificial intelligence, machine learning, and deep learning to the pediatric anesthesiologist. Current evidence and developments in artificial intelligence, machine learning, and deep learning relevant to pediatric airway management are presented. We critically assess the current evidence on the use of artificial intelligence and machine learning in the assessment, diagnosis, monitoring, procedure assistance, and predicting outcomes during pediatric airway management. Further, we discuss the limitations of these technologies and offer areas for focused research that may bring pediatric airway management anesthesiology into the era of artificial intelligence and machine learning.

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PMID: 31845543 [Indexed for MEDLINE]

36. Zhongguo Yi Liao Qi Xie Za Zhi. 2019 Sep 30;43(5):379-383. doi: 10.3969/j.issn.1671-7104.2019.05.019.

[Study on the Clinical Evaluation of Image-based Artificial Intelligence Aided Diagnosis Software Approved in the United States].

[Article in Chinese]

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Artificial intelligence, as the breakthrough of current information technology, is gaining importance and being applied in more and more industries. Research on the application of artificial intelligence to the medical field has gradually matured and some products have come out. Relevant products in the United States have been approved by the FDA, mainly for image-based software products. In this paper, we studied the cases of image-based artificial intelligence aided diagnosis software approved by the US FDA, and analyzed the listing routes, clinical evaluation methods and clinical data processing of representative artificial intelligence products, and summarized the clinical evaluation

characteristics of FDA for image-based artificial intelligence aided diagnosis software. Finally, problems that may be encountered in the clinical evaluation of similar products in China were considered, and relevant suggestions were put forward.

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PMID: 31625342 [Indexed for MEDLINE]

37. J Forens Psychiatry Psychol. 2014 Sep 3;25(5):600-612. doi: 10.1080/14789949.2014.943798. Epub 2014 Aug 12.

Psychopathy, intelligence and emotional responding in a non-forensic sample: an experimental investigation.

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This study examined the relationships between psychopathy (primary and secondary), intelligence and emotional responding in a sample of 50 university students, using a task measuring autonomic responses to 40 pictorial stimuli (20 neutral and 20 emotionally provoking). Results indicated no significant direct relationship between primary or secondary psychopathy and emotional response, or primary or secondary psychopathy and intelligence. However, a significant moderating effect of intelligence on the association between both psychopathy factors and emotional response was observed, indicating those scoring higher on psychopathy but with lower intelligence portray the expected emotional responses to the affective stimuli (primary: $\beta = -.56$, $p < .05$; secondary: $\beta = .80$, $p < .001$). These findings indicate abnormal reactivity to emotional stimuli in lower intelligence, higher psychopathic individuals, and suggest differing roles for the two facets of psychopathy in affective responsiveness deviations.

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PMCID: PMC4720052
PMID: 26855616

38. Proc Natl Acad Sci U S A. 2023 Nov 14;120(46):e2311497120. doi: 10.1073/pnas.2311497120. Epub 2023 Nov 6.

Incentivizing free riders improves collective intelligence in social dilemmas.

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Collective intelligence challenges are often entangled with collective action problems. For example, voting, rating, and social innovation are collective

intelligence tasks that require costly individual contributions. As a result, members of a group often free ride on the information contributed by intrinsically motivated people. Are intrinsically motivated agents the best participants in collective decisions? We embedded a collective intelligence task in a large-scale, virtual world public good game and found that participants who joined the information system but were reluctant to contribute to the public good (free riders) provided more accurate evaluations, whereas participants who rated frequently underperformed. Testing the underlying mechanism revealed that a negative rating bias in free riders is associated with higher accuracy. Importantly, incentivizing evaluations amplifies the relative influence of participants who tend to free ride without altering the (higher) quality of their evaluations, thereby improving collective intelligence. These results suggest that many of the currently available information systems, which strongly select for intrinsically motivated participants, underperform and that collective intelligence can benefit from incentivizing free riding members to engage. More generally, enhancing the diversity of contributor motivations can improve collective intelligence in settings that are entangled with collective action problems.

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PMID: 37931106 [Indexed for MEDLINE]

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39. Psychiatry Investig. 2023 Aug;20(8):714-720. doi: 10.30773/pi.2022.0310. Epub 2023 Aug 11.

Influence of Mode of Delivery on Children's Attention Deficit Hyperactivity Disorder and Childhood Intelligence.

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OBJECTIVE: To investigate whether differences exist in attention deficit hyperactivity disorder (ADHD) and intelligence between children born by cesarean delivery and those born by vaginal delivery.
METHODS: This retrospective study included singleton children that were born between January 2013 and December 2014. The Chinese version of the Conners' Parent Rating Scale-Revised (CPRS-48) was required on the probability of psychological and behavioral problems. The China-Wechsler Intelligence Scale for Children (C-WIRS) was used for evaluation of crystallized intelligence and Raven's Standard Progressive Matrices for evaluation of fluid intelligence.
RESULTS: A total of 10,568 valid questionnaires were obtained. CPRS-48 ADHD index and detection rate were higher in cesarean delivery group than those in vaginal delivery group. Cesarean delivery groups had a lower performance intelligence quotient score according to C-WISC.
CONCLUSION: Children born by cesarean delivery were more likely to have a risk of ADHD and a lower performance intelligence quotient compared with those born by vaginal delivery.

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PMID: 37559451

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40. Comput Intell Neurosci. 2022 Jun 11;2022:9160727. doi: 10.1155/2022/9160727. eCollection 2022.

Human Intelligence Analysis through Perception of AI in Teaching and Learning.

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Instructional practices have undergone a drastic change as a result of the development of new educational technology. Artificial intelligence (AI) as a teaching and learning technology will be examined in this theoretical review study. To enhance the quality of teaching and learning, the use of artificial intelligence approaches is being studied. Artificial intelligence integration in educational institutions has been addressed, though. Students' assistance, teaching, learning, and administration are also addressed in the discussion of students' adoption of artificial intelligence. Artificial intelligence has the potential to revolutionize our social interactions and generate new teaching and learning methods that may be evaluated in a variety of contexts. New educational technology can help students and teachers better accomplish and manage their educational objectives. Artificial intelligence algorithms are used in a hybrid teaching mode in this work to examine students' attributes and introduce predictions of future learning success. The teaching process may be carried out in a more efficient manner using the hybrid mode. Educators and scientists alike will benefit from artificial intelligence algorithms that may be used to extract useful information from the vast amounts of data collected on human behavior.

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41. BMC Pediatr. 2022 May 16;22(1):283. doi: 10.1186/s12887-022-03349-4.

Regression to the mean in latent change score models: an example involving

breastfeeding and intelligence.

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BACKGROUND: Latent change score models are often used to study change over time in observational data. However, latent change score models may be susceptible to regression to the mean. Earlier observational studies have identified a positive association between breastfeeding and child intelligence, even when adjusting for maternal intelligence.
METHOD: In the present study, we investigate regression to the mean in the case of breastfeeding and intelligence of children. We used latent change score modeling to analyze intergenerational change in intelligence, both from mothers to children and backward from children to mothers, in the 1979 National Longitudinal Survey of Youth (NLSY79) dataset (N = 6283).
RESULTS: When analyzing change from mothers to children, breastfeeding was found to have a positive association with intergenerational change in intelligence, whereas when analyzing backward change from children to mothers, a negative association was found.
CONCLUSIONS: These discrepant findings highlight a hidden flexibility in the analytical space and call into question the reliability of earlier studies of breastfeeding and intelligence using observational data.

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42. Brain Res. 2022 Jul 15;1787:147922. doi: 10.1016/j.brainres.2022.147922. Epub 2022 Apr 20.

Using resting thalamic connectivity to identify the relationship between Eysenck personality traits and intelligence in healthy adults.

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Personality refers to a set of relatively stable psychological characteristics of individuals and has been associated with intelligence. It is well known that the thalamus plays an important role in cognitive processes and personality traits, but the relationship between personality traits, thalamic function, and intelligence has rarely been directly explored. Hence, we investigated the relationship between Eysenck personality traits, resting-state functional connectivity (rsFC) of the thalamus, and intelligence in a large sample of healthy adults (N = 176). We found that the trait of psychoticism was negatively associated with intelligence. The high intelligence group showed significantly lower psychoticism and demonstrated enhanced thalamic connectivity to the amygdala, inferior parietal lobules, pallidum, medial superior/middle frontal gyrus, and precuneus. Furthermore, a mediation analysis indicated that the FC between the left thalamus and left amygdala significantly mediated the correlation between psychoticism and full IQ (FIQ). These findings suggest that intelligent people may be less prone to psychoticism. Meanwhile, thalamic rsFC may reflect individual differences in intelligence and play a key role in the relationship between personality traits and intellectual abilities.

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PMID: 35460643 [Indexed for MEDLINE]

43. Psychol Res Behav Manag. 2021 Mar 15;14:307-316. doi: 10.2147/PRBM.S302697. eCollection 2021.

Emotional Intelligence and Academic Engagement in Adolescents: The Mediating Role of Self-Esteem.

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BACKGROUND: Academic engagement is a variable of vital importance in adolescence due to its relationship with academic adjustment and its protective role against risk behaviors. Therefore, the objective of this study was to find out the variables involved in its development.
OBJECTIVE: The specific objectives were to analyze the relationship between emotional intelligence, self-esteem and academic engagement, and determine the mediating role of self-esteem in the relationship between emotional intelligence and engagement in adolescence.
METHODS: The sample of 1287 high school students used for this filled in the Utrecht Work Engagement Scale Student, Brief Emotional Intelligence Inventory and the Rosenberg Self Esteem Scale.

RESULTS: The results showed the existence of positive relationships between vigor, dedication and absorption with the emotional intelligence factors and self-esteem. Furthermore, the mediation models showed the direct effect of emotional intelligence on engagement of youths. Self-esteem acted as a mediator in the relationship between intrapersonal factors, stress management and adaptability of emotional intelligence and engagement.
CONCLUSION: Design of emotional intelligence intervention programs are recommended as a measure for promoting self-esteem and engagement in adolescence.

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PMID: 33758558

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44. Psychol Rep. 2020 Dec;123(6):2418-2440. doi: 10.1177/0033294119860254. Epub 2019
Jun 25.

Emotional Intelligence, Job Satisfaction, Emotional Exhaustion, and Subjective Well-Being in High School Athletic Directors.

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Developing subjective well-being among educational leaders is beneficial for both leaders themselves and students. Evidence has suggested that emotional intelligence has implications for the mental and physical well-being of individuals in leadership positions. This relationship has not, however, been extensively investigated among school administrators, particularly athletic directors, who can influence the lives of student-athletes. Thus, this study sought to examine the relationships among emotional intelligence, job satisfaction, emotional exhaustion, and subjective well-being in high school athletic directors. Participants included 394 U.S. high school athletic directors who completed questionnaires relating to emotional intelligence, job satisfaction, emotional exhaustion, and subjective well-being. The results revealed positive associations between emotional intelligence and subjective well-being and also demonstrated that both job satisfaction and emotional exhaustion mediated the emotional intelligence-subjective well-being relationship. The results highlight the role of emotional intelligence in athletic directors' subjective well-being and suggest that athletic directors should take measures to increase their emotional intelligence through professional learning opportunities and school support structures.

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PMID: 31237827 [Indexed for MEDLINE]

45. Nutrients. 2018 Mar 23;10(4):396. doi: 10.3390/nu10040396.

Macular Xanthophylls Are Related to Intellectual Ability among Adults with Overweight and Obesity.

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Excess adiposity or obesity has been inversely related to cognitive function and macular xanthophyll status. However, whether the neuroprotective effects of macular xanthophylls on cognitive function are independent of excess adiposity is unclear. We investigated the relationship between macular xanthophylls and intellectual ability among adults (N = 114) between 25 and 45 years with overweight and obesity (≥25 kg/m^2). Dual energy X-ray absorptiometry and heterochromatic flicker photometry were used to assess whole body adiposity (%Fat) and macular pigment optical density (MPOD), respectively. Dietary xanthophylls (lutein and zeaxanthin) were assessed using 7-day diet records. The Kaufman Brief Intelligence Test-2 (KBIT-2) was used to assess general intelligence (IQ) as well as fluid and crystallized intelligence. Bivariate correlations revealed that MPOD was inversely related to %Fat and positively associated with IQ and fluid intelligence. Although %Fat was inversely correlated to IQ and fluid intelligence, this relationship did not persist following adjustment for sex and MPOD. Further, MPOD was an independent predictor of IQ and fluid intelligence. However, no significant relationships were observed between MPOD and crystalized intelligence. These results suggest that macular xanthophylls are selectively related to fluid intelligence, regardless of degree of adiposity among adults with overweight and obesity.

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the decision to publish the results.

46. Arch Psychiatr Nurs. 2017 Feb;31(1):13-23. doi: 10.1016/j.apnu.2016.07.009. Epub
2016 Aug 3.

Relation Between Emotional Intelligence, Socio-Demographic and Clinical Characteristics of Patients with Depressive Disorders.

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The present study aims to assess the emotional intelligence in relation to socio-demographic and clinical characteristics of patients with depressive disorders. A descriptive correlational study was utilized with a sample of (106) depressed patients who were diagnosed by a psychiatrist with depressive disorders at psychiatric outpatient clinics in Mansoura University Hospital. Data were collected through assessing socio demographic and clinical characteristics, assessing level of depression using Beck Depression Inventory BDI-II, and assessing emotional intelligence using Barchard emotional intelligence scales. Results revealed that emotional intelligence not related significantly to socio demographic and clinical characteristics of patients with depressive disorders, there is a highly significant relationship between emotional intelligence in relation to level of depression and other practices used to alleviate depression. Therefore, it is recommended to conduct a periodical workshops and training programs for adolescents and young in the universities, schools, social clubs, camps and youth organizations to enhance their emotional intelligence in order to prevent depression. In addition, assessing the effect of emotional intelligence programs on preventing and managing depression.

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PMID: 28104051 [Indexed for MEDLINE]

47. Int J Aging Hum Dev. 2016 Jul;83(2):91-107. doi: 10.1177/0091415016648705.

Emotional Intelligence Mediates the Relationship between Age and Subjective Well-Being.

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Individuals' Subjective Well-being (SWB) increases as they grow older. Past literature suggests that emotional intelligence may increase with age and lead to higher levels of SWB in older adults. The primary purpose of the present

study was to test whether emotional intelligence would mediate the relationship between age and SWB. A total of 360 Chinese adults (age range: 20 to 79 years old) participated in this study. They filled out questionnaires that assessed their age, life satisfaction (The Satisfaction with Life Scale), affective well-being (The Positive and Negative Affect Schedule), and emotional intelligence (The Wong and Law Emotional Intelligence Scale). Using Structural Equation Modeling, the mediation model was supported, $\chi(2)$ (75) = 194.21, $p < .01$; RMSEA = .07; CFI = .91. Emotional intelligence partially mediated the relationship between age and life satisfaction, and fully mediated the relationship between age and affective well-being. The findings suggest that older adults may use their increased emotional intelligence to enhance their SWB.

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48. J Neuropsychol. 2017 Sep;11(3):362-377. doi: 10.1111/jnp.12096. Epub 2015 Dec 31.

Working memory - not processing speed - mediates fluid intelligence deficits associated with attention deficit/hyperactivity disorder symptoms.

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Attention deficit/hyperactivity disorder (ADHD) is a psychological condition characterized by inattention and hyperactivity. Cognitive deficits are commonly observed in ADHD patients, including impaired working memory, processing speed, and fluid intelligence, the three of which are theorized to be closely associated with one another. In this study, we aimed to determine if decreased fluid intelligence was associated with ADHD, and was mediated by deficits in working memory and processing speed. This study tested 142 young adults from the general population on a range of working memory, processing speed, and fluid intelligence tasks, and an ADHD self-report symptoms questionnaire. Results showed that total and hyperactive ADHD symptoms correlated significantly and negatively with fluid intelligence, but this association was fully mediated by working memory. However, inattentive symptoms were not associated with fluid intelligence. Additionally, processing speed was not associated with ADHD symptoms at all, and was not uniquely predictive of fluid intelligence. The results provide implications for working memory training programs for ADHD patients, and highlight potential differences between the neuropsychological profiles of ADHD subtypes.

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49. J Neurosci. 2014 Dec 3;34(49):16358-68. doi: 10.1523/JNEUROSCI.1857-14.2014.

Sleep spindles and intelligence: evidence for a sexual dimorphism.

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Sleep spindles are thalamocortical oscillations in nonrapid eye movement sleep, which play an important role in sleep-related neuroplasticity and offline information processing. Sleep spindle features are stable within and vary between individuals, with, for example, females having a higher number of spindles and higher spindle density than males. Sleep spindles have been associated with learning potential and intelligence; however, the details of this relationship have not been fully clarified yet. In a sample of 160 adult human subjects with a broad IQ range, we investigated the relationship between sleep spindle parameters and intelligence. In females, we found a positive age-corrected association between intelligence and fast sleep spindle amplitude in central and frontal derivations and a positive association between intelligence and slow sleep spindle duration in all except one derivation. In males, a negative association between intelligence and fast spindle density in posterior regions was found. Effects were continuous over the entire IQ range. Our results demonstrate that, although there is an association between sleep spindle parameters and intellectual performance, these effects are more modest than previously reported and mainly present in females. This supports the view that intelligence does not rely on a single neural framework, and stronger neural connectivity manifesting in increased thalamocortical oscillations in sleep is one particular mechanism typical for females but not males.

DOI: 10.1523/JNEUROSCI.1857-14.2014
PMCID: PMC6608484
PMID: 25471574 [Indexed for MEDLINE]

50. Appl Neuropsychol Adult. 2015;22(4):262-70. doi: 10.1080/23279095.2014.920842.

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Intelligence and Psychopathy Do Not Influence Malingering.

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This study examined the influence of psychopathy and intelligence on malingering in a simulated malingering design. We hypothesized that participants high in both traits would be more adept at evading detection on performance validity tests (PVTs). College students (N = 92) were first administered the Wechsler Test of Adult Reading, a reading measure that estimates intelligence, and the Psychopathic Personality Inventory-Short Form under standard conditions. They were then asked to imagine as if they had suffered a concussion a year ago and were instructed to fake or exaggerate symptoms in a believable fashion to improve their settlement as part of a lawsuit. Participants were subsequently administered a brief neuropsychological battery that included the Word Memory Test, Rey 15-Item Test with Recognition, Finger-Tapping Test, and Digit Span from the Wechsler Adult Intelligence Scale-Fourth Edition. Moderated multiple regressions with hierarchical entry were conducted. Intelligence, psychopathy, and the interaction of intelligence and psychopathy were not related to performance on any of the PVTs. In other words, participants who scored higher on intelligence and psychopathy did not perform differently on these measures compared with other participants. Though a null finding, implications of this study are discussed in terms of the broader research and clinical literature on malingering.

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PMID: 25402508 [Indexed for MEDLINE]

51. Front Oncol. 2021 Jun 8;11:630953. doi: 10.3389/fonc.2021.630953. eCollection 2021.

Artificial Intelligence Can Cut Costs While Maintaining Accuracy in Colorectal Cancer Genotyping.

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Rising cancer care costs impose financial burdens on health systems. Applying artificial intelligence to diagnostic algorithms may reduce testing costs and avoid wasteful therapy-related expenditures. To evaluate the financial and clinical impact of incorporating artificial intelligence-based determination of mismatch repair/microsatellite instability status into the first-line metastatic colorectal carcinoma setting, we developed a deterministic model to compare

eight testing strategies: A) next-generation sequencing alone, B) high-sensitivity polymerase chain reaction or immunohistochemistry panel alone, C) high-specificity panel alone, D) high-specificity artificial intelligence alone, E) high-sensitivity artificial intelligence followed by next generation sequencing, F) high-specificity artificial intelligence followed by next-generation sequencing, G) high-sensitivity artificial intelligence and high-sensitivity panel, and H) high-sensitivity artificial intelligence and high-specificity panel. We used a hypothetical, nationally representative, population-based sample of individuals receiving first-line treatment for de novo metastatic colorectal cancer (N = 32,549) in the United States. Model inputs were derived from secondary research (peer-reviewed literature and Medicare data). We estimated the population-level diagnostic costs and clinical implications for each testing strategy. The testing strategy that resulted in the greatest project cost savings (including testing and first-line drug cost) compared to next-generation sequencing alone in newly-diagnosed metastatic colorectal cancer was using high-sensitivity artificial intelligence followed by confirmatory high-specificity polymerase chain reaction or immunohistochemistry panel for patients testing negative by artificial intelligence ($400 million, 12.9%). The high-specificity artificial intelligence-only strategy resulted in the most favorable clinical impact, with 97% diagnostic accuracy in guiding genotype-directed treatment and average time to treatment initiation of less than one day. Artificial intelligence has the potential to reduce both time to treatment initiation and costs in the metastatic colorectal cancer setting without meaningfully sacrificing diagnostic accuracy. We expect the artificial intelligence value proposition to improve in coming years, with increasing diagnostic accuracy and decreasing costs of processing power. To extract maximal value from the technology, health systems should evaluate integrating diagnostic histopathologic artificial intelligence into institutional protocols, perhaps in place of other genotyping methodologies.

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PMCID: PMC8217761
PMID: 34168975

Conflict of interest statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

52. J Psycholinguist Res. 2023 Aug;52(4):1093-1113. doi: 10.1007/s10936-023-09940-9.
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Foreign Accented-Speech and Perceptions of Confidence and Intelligence.

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The purpose of the current study is to explore listeners' perception of accented speech in terms of confidence and intelligence. To this end, three groups of

listeners were asked to rate speakers of English with various accent strengths based on a 9-point scale in terms of accent magnitude, confidence and intelligence. Results show that the two Jordanian listener groups, unlike the English listeners, reacted similarly toward Jordanian-accented speakers of English. Overall, the three groups tended to link accentedness with perceptions of confidence and intelligence. The findings of this study have significant implications for advocating a tolerant attitude toward speakers of English as a foreign language in the fields of education, employment opportunities, and social justice. It is suggested that stereotyping speakers as inferior in terms of qualities such as confidence and intelligence reflects established listener's bias rather than lack of speaker's intelligibility.

DOI: 10.1007/s10936-023-09940-9
PMID: 36867293 [Indexed for MEDLINE]

53. Psicol Reflex Crit. 2022 Jun 10;35(1):17. doi: 10.1186/s41155-022-00221-3.

Creativity and its relationship with intelligence and reading skills in children: an exploratory study.

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Creativity, intelligence, and reading skills such as phonological awareness and decoding in reading can be critical to academic success, especially during childhood. Thus, this study aimed to characterize creativity, intelligence, phonological awareness, and reading decoding and verify possible relationships between creativity and these skills. The sample consisted of 75 children divided between the 1st, 2nd, and 3rd grades of municipal public schools in the Brazilian context. The results indicated the gradual evolution of creativity, intelligence, phonological awareness, and reading decoding in children from the 1st to the 3rd year, especially for the performance of the 3rd year. Correlations between creativity with intelligence and reading skills were also evidenced for all three classes, with the 3rd year with stronger correlations, which are promising results for these relationships. The study of creativity is still a recent field for empirical investigations and deserves future investigations for a better understanding of these constructs in this population.

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PMCID: PMC9187149

PMID: 35689121

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54. J Am Med Inform Assoc. 2021 Dec 28;29(1):207-212. doi: 10.1093/jamia/ocab238.

Trust in AI: why we should be designing for APPROPRIATE reliance.

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Use of artificial intelligence in healthcare, such as machine learning-based predictive algorithms, holds promise for advancing outcomes, but few systems are used in routine clinical practice. Trust has been cited as an important challenge to meaningful use of artificial intelligence in clinical practice. Artificial intelligence systems often involve automating cognitively challenging tasks. Therefore, previous literature on trust in automation may hold important lessons for artificial intelligence applications in healthcare. In this perspective, we argue that informatics should take lessons from literature on trust in automation such that the goal should be to foster appropriate trust in artificial intelligence based on the purpose of the tool, its process for making recommendations, and its performance in the given context. We adapt a conceptual model to support this argument and present recommendations for future work.

DOI: 10.1093/jamia/ocab238
PMCID: PMC8714273
PMID: 34725693 [Indexed for MEDLINE]

55. Indian J Ophthalmol. 2021 Jan;69(1):8-13. doi: 10.4103/ijo.IJO_1848_19.

Artificial intelligence in ophthalmology and healthcare: An updated review of the techniques in use.

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Artificial intelligence (AI) refers to "the ability of a digital machine or computer to accomplish tasks that traditionally have required human intelligence." These days, artificial intelligence is becoming popular in healthcare and more so in ophthalmology. It has shown promising results in diabetic retinopathy detection and referral. Recently, Indian data has depicted that the new algorithms can be generalized to the Indian population as well. An

increased understanding of the tools is required especially by the practitioners and medical researchers so that they can contribute meaningfully to the development of the technology and not become mere data providers and data labelers. While AI is extensively being used by finance, marketing and travel industry, its application is more recent in medicine. The applications based on artificial intelligence have the potential to benefit all stakeholders in the healthcare industry.

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PMCID: PMC7926114
PMID: 33323564 [Indexed for MEDLINE]

Conflict of interest statement: None

56. Hum Brain Mapp. 2015 Apr;36(4):1407-16. doi: 10.1002/hbm.22710. Epub 2014 Dec 9.

Subcortical intelligence: caudate volume predicts IQ in healthy adults.

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This study examined the association between size of the caudate nuclei and intelligence. Based on the central role of the caudate in learning, as well as neuroimaging studies linking greater caudate volume to better attentional function, verbal ability, and dopamine receptor availability, we hypothesized the existence of a positive association between intelligence and caudate volume in three large independent samples of healthy adults (total N = 517). Regression of IQ onto bilateral caudate volume controlling for age, sex, and total brain volume indicated a significant positive correlation between caudate volume and intelligence, with a comparable magnitude of effect across each of the three samples. No other subcortical structures were independently associated with IQ, suggesting a specific biological link between caudate morphology and intelligence.

DOI: 10.1002/hbm.22710
PMCID: PMC6869035
PMID: 25491047 [Indexed for MEDLINE]

57. Perspect Psychol Sci. 2013 Jan;8(1):25-40. doi: 10.1177/1745691612462585.

How to Make a Young Child Smarter: Evidence From the Database of Raising Intelligence.

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Can interventions meaningfully increase intelligence? If so, how? The Database of Raising Intelligence is a continuously updated compendium of randomized controlled trials that were designed to increase intelligence. In this article,

the authors examine nearly every available intervention involving children from birth to kindergarten, using meta-analytic procedures when more than 3 studies tested similar methods and reviewing interventions when too few were available for meta-analysis. This yielded 4 meta-analyses on the effects of dietary supplementation to pregnant mothers and neonates, early educational interventions, interactive reading, and sending a child to preschool. All 4 meta-analyses yielded significant results: Supplementing infants with long-chain polyunsaturated fatty acids, enrolling children in early educational interventions, reading to children in an interactive manner, and sending children to preschool all raise the intelligence of young children.

DOI: 10.1177/1745691612462585
PMID: 26172250

58. Pan Afr Med J. 2021 Feb 17;38:184. doi: 10.11604/pamj.2021.38.184.28197. eCollection 2021.

Artificial intelligence (AI) in medicine as a strategic valuable tool.

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Humans' creativity led to machines that outperform human capabilities in terms of workload, effectiveness, precision, endurance, strength, and repetitiveness. It has always been a vision and a way to transcend the existence and to give more sense to life, which is precious. The common denominator of all these creations was that they were meant to replace, enhance or go beyond the mechanical capabilities of the human body. The story takes another bifurcation when Alan Turing introduced the concept of a machine that could think, in 1950. Artificial intelligence, presented as a term in 1956, describes the use of computers to imitate intelligence and critical thinking comparable to humans. However, the revolution began in 1943, when artificial neural networks was an attempt to exploit the architecture of the human brain to perform tasks that conventional algorithms had little success with. Artificial intelligence is becoming a research focus and a tool of strategic value. The same observations apply in the field of healthcare, too. In this manuscript, we try to address key questions regarding artificial intelligence in medicine, such as what artificial intelligence is and how it works, what is its value in terms of application in medicine, and what are the prospects?

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PMCID: PMC8106796
PMID: 33995790 [Indexed for MEDLINE]

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59. Intelligence. 2020 Jan-Feb;78:101420. doi: 10.1016/j.intell.2019.101420. Epub 2019 Nov 28.

Differential associations between rumination and intelligence subtypes.

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Although prior theory suggests that rumination contributes to cognitive impairments associated with depression, recent work suggests that rumination is associated with higher levels of intelligence. The present study examined the relations between two ruminative subtypes (brooding and reflective pondering) and multiple measures and types of intelligence (verbal and performance) after controlling for rumination's overlapping variance with depression. Participants were 751 individuals from the Colorado Longitudinal Twin Study who completed the Ruminative Response Scale; the Center for Epidemiological Studies-Depression Scale and a fully structured clinical interview as measures of depression; and verbal and performance intelligence tasks at age 16 and the Raven's Advanced Progressive Matrices at age 23. Reflective pondering was positively associated with all measures of intelligence, whereas brooding was not associated with intelligence. Our findings indicate that any negative associations between rumination and intelligence are attributable to shared variance with depression, and that examination of rumination as a multifaceted construct may provide new insights into the relations between rumination and cognition.

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PMCID: PMC7453434
PMID: 32863476

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60. Int J Environ Res Public Health. 2019 Feb 6;16(3):478. doi: 10.3390/ijerph16030478.

Family Functioning, Emotional Intelligence, and Values: Analysis of the Relationship with Aggressive Behavior in Adolescents.

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Aggressive behavior in adolescence is influenced by a diversity of individual, family, and social variables. The purpose of this study was to analyze the relationship between family functioning, emotional intelligence, and personal values for development with different types of aggression, as well as to establish profiles with these variables according to the aggression. The study was carried out with a sample of 317 high school students aged 13 to 18 years old. The study showed that stress management (emotional intelligence), positive adolescent development, and family functioning predominated in nonaggressive subjects with higher scores than aggressors did. There was also a negative relationship between the different types of aggression and emotional intelligence, positive values, and family functioning. In addition, two different profiles were found. The first profile had less family functioning, interpersonal emotional intelligence, stress management, and fewer personal and social values than the second profile.

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PMCID: PMC6388189
PMID: 30736326 [Indexed for MEDLINE]

Conflict of interest statement: The authors declare no conflict of interest.

61. Discoveries (Craiova). 2017 Sep 30;5(3):e76. doi: 10.15190/d.2017.6.

Artificial Intelligence versus Doctors' Intelligence: A Glance on Machine Learning Benefaction in Electrocardiography.

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Computational machine learning, especially self-enhancing algorithms, prove remarkable effectiveness in applications, including cardiovascular medicine. This review summarizes and cross-compares the current machine learning algorithms applied to electrocardiogram interpretation. In practice, continuous real-time monitoring of electrocardiograms is still difficult to realize. Furthermore, automated ECG interpretation by implementing specific artificial intelligence algorithms is even more challenging. By collecting large datasets from one individual, computational approaches can assure an efficient personalized treatment strategy, such as a correct prediction on patient-specific disease progression, therapeutic success rate and limitations of certain interventions, thus reducing the hospitalization costs and physicians' workload. Clearly such aims can be achieved by a perfect symbiosis

of a multidisciplinary team involving clinicians, researchers and computer scientists. Summarizing, continuous cross-examination between machine intelligence and human intelligence is a combination of precision, rationale and high-throughput scientific engine integrated into a challenging framework of big data science.

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PMCID: PMC6941587
PMID: 32309594

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62. J Intell. 2021 Nov 26;9(4):58. doi: 10.3390/jintelligence9040058.

Adaptive Intelligence: Intelligence Is Not a Personal Trait but Rather a Person × Task × Situation Interaction.

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This article explores the advantages of viewing intelligence not as a fixed trait residing within an individual, but rather as a person × task × situation interaction. The emphasis in the article is on the role of persons solving tasks embedded in situations involving learning, intellectual abilities, and competencies. The article opens with a consideration of the role of situations in intelligent behavior. The article then discusses how intelligence is more similar to creativity and wisdom, in terms of the role of situations, than many psychologists have realized. Then the article reviews the role of situations in identity-based and irrational thinking and in conspiratorial thinking and cults. Next the article discusses the demonstrated importance of situations in assessment, but also notes the difficulties in sampling situations. Finally, the article draws conclusions, in particular, that, given our lack of situation-based tests, we need to be more modest in our interpretations results from conventional tests of intelligence.

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PMCID: PMC8704265
PMID: 34940380

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63. World J Transplant. 2021 Jul 18;11(7):277-289. doi: 10.5500/wjt.v11.i7.277.

Artificial intelligence and kidney transplantation.

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Artificial intelligence and its primary subfield, machine learning, have started to gain widespread use in medicine, including the field of kidney transplantation. We made a review of the literature that used artificial intelligence techniques in kidney transplantation. We located six main areas of kidney transplantation that artificial intelligence studies are focused on: Radiological evaluation of the allograft, pathological evaluation including molecular evaluation of the tissue, prediction of graft survival, optimizing the dose of immunosuppression, diagnosis of rejection, and prediction of early graft function. Machine learning techniques provide increased automation leading to faster evaluation and standardization, and show better performance compared to traditional statistical analysis. Artificial intelligence leads to improved computer-aided diagnostics and quantifiable personalized predictions that will improve personalized patient care.

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PMCID: PMC8290997
PMID: 34316452

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64. Perspect Psychiatr Care. 2022 Apr;58(2):795-803. doi: 10.1111/ppc.12852. Epub 2021 May 20.

The effects of nursing students' conscientious intelligence on their cultural sensitivity levels.

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PURPOSE: This study was carried out to determine the relationship between the level of conscientious intelligence and cultural sensitivity among nursing students.
METHODS: This is a cross-sectional descriptive design. The sample of this study consisted of 172 nursing students. The study data were collected using a sociodemographic data form, the intercultural sensitivity scale, and the conscientious intelligence scale.
RESULTS: The mean intercultural sensitivity scale score was 80.07 ± 10.68, and the mean conscientious intelligence scale score was 120.89 ± 12.32. Also, a positive relationship was determined between both scales that the nursing students obtained.
PRACTICE IMPLICATIONS: The scale scores of nursing students were found to be a moderate level. As students' conscientious intelligence levels increased, their intercultural sensitivity was determined to increase, as well.

DOI: 10.1111/ppc.12852
PMID: 34018201 [Indexed for MEDLINE]

65. Echocardiography. 2021 Jun;38(6):982-992. doi: 10.1111/echo.15048. Epub 2021 May
13.

Applications of artificial intelligence and machine learning approaches in echocardiography.

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Artificial intelligence and machine learning approaches have become increasingly applied in the field of echocardiography to streamline diagnostic and prognostic assessments, and to support treatment decisions. Artificial intelligence and machine learning have been applied to aid image acquisition and automation. They have also been applied to the integration of clinical and imaging data. Applications of artificial intelligence and machine learning approaches in echocardiography in conjunction with health information databases may be promising in improving the classification and treatment of many cardiac conditions. This review article provides an overview of the applications of artificial intelligence and machine learning approaches in echocardiography.

DOI: 10.1111/echo.15048
PMID: 33982820 [Indexed for MEDLINE]

66. Behav Sci (Basel). 2019 Apr 24;9(4):44. doi: 10.3390/bs9040044.

Development of Emotional Intelligence through Physical Activity and Sport Practice. A Systematic Review.

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At present, knowledge of physical and cognitive aspects is essential in the sporting context. Faced with this situation, the control and knowledge of emotions has a person on himself and on others, affects the sporting action. The aim of this work is to examine the relationship between emotional intelligence and the practice of physical activity. Through a systematic review in databases such as the Web of Science and Scopus that contain the terms of emotional intelligence along with the parameters of physical activity and sport. Twenty-four articles comprised the sample for further analysis. By way of conclusion it can be said that the main field of study of emotional intelligence related to the practice of physical activity is educational. Likewise, emotional intelligence is a determining factor in the improvement of sports competences.

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PMCID: PMC6523064
PMID: 31022863

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67. Cogn Emot. 2018 Aug;32(5):1097-1104. doi: 10.1080/02699931.2017.1362373. Epub 2017 Aug 8.

How does emotional intelligence relate to adolescents' interpretation of cues for disgust?

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This study investigated the relationship of emotional intelligence and age to adolescents' (11-17 years) free labelling responses to proposed facial expressions and situations for disgust. Emotional intelligence continues to develop throughout adolescence and may provide needed cognitive support for linking the disgust face to the disgust script. Emotional intelligence, specifically, regulating one's own and others emotions, and age predicted adolescents' labelling of disgust facial expressions (but not situations) as disgusted. Older adolescents (15-17 years) were more likely to label disgust faces as disgusted than were younger adolescents (11-14 years) - an effect not found for disgust situations. Labelling the disgust face as disgusted continues to increase until late adolescence. The addition of the disgust face to the disgust script occurs in late adolescence and it is related to the cognitive abilities associated with emotional intelligence.

DOI: 10.1080/02699931.2017.1362373
PMID: 28789592 [Indexed for MEDLINE]

68. Front Psychol. 2023 Mar 14;14:1077424. doi: 10.3389/fpsyg.2023.1077424. eCollection 2023.

Impact of cultural intelligence on the cross-cultural adaptation of international students in China: The mediating effect of psychological resilience.

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INTRODUCTION: Cultural intelligence can affect the cross-cultural adaptation of international students in China, but the mechanism of its influence is still unclear. This study examines the mediating effect of the psychological resilience of international students in China in the process of cultural intelligence affecting cross-cultural adaptation. We used the cultural intelligence scale, psychological resilience scale, and cross-cultural adaptation scale to measure 624 foreign students in China.
RESULTS: (1) There is a significant positive correlation between the cultural intelligence, psychological resilience, and cross-cultural adaptation of international students in China. (2) Resilience plays a mediating effect in the influence of the cultural intelligence of international students in China on cross-cultural adaptation.
CONCLUSION: The cultural intelligence of international students in China can directly affect their cross-cultural adaptation and can also affect their cross-cultural adaptation through the mediating effect of psychological resilience.

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PMCID: PMC10045037
PMID: 36998369

Conflict of interest statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

69. Medicine (Baltimore). 2022 Oct 21;101(42):e31001. doi: 10.1097/MD.0000000000031001.

Association between conscientiousness and team emotional intelligence: A moderated mediation model.

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To investigate the influence of interpersonal emotion regulation and conscientiousness on team emotional intelligence. A total of 1369 college students were investigated with the conscientiousness subscale of Big Five Personality Questionnaire, Team Emotional Intelligence Scale and Leadership Positive Emotional Operation Questionnaire. Variance analysis, Pearson product difference correlation analysis, multiple regression analysis and path analysis were used. In order to avoid the possible skew problem, the bootstrap method was used to calculate the structural equation model. SPSS 22.0, Amos 24, R software were used for statistical analysis. A total of 1600 questionnaires were sent out and 1369 effective questionnaires were recovered. The total score of College Students' team emotional intelligence was 5.07 ± 0.70, with 4.88 ± 0.87, 5.38 ± 0.79, 4.74 ± 0.91, 4.71 ± 0.83, 5.23 ± 1.00, and 5.46 ± 0.91 for

interpersonal understanding, asking for feedback, emotional management, organizational cognition, relationship building and problem-solving ability, respectively. Conscientiousness significantly predicted team emotional intelligence, and leadership's positive emotional operation. Furthermore, conscientiousness could predict team emotional intelligence through mediating individual emotional intelligence. Interpersonal positive emotion regulation played a part of mediating role between conscientiousness and team emotional intelligence.

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PMCID: PMC9592429
PMID: 36281186 [Indexed for MEDLINE]

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70. Enferm Clin (Engl Ed). 2023 Jan-Feb;33(1):68-71. doi: 10.1016/j.enfcle.2022.04.005. Epub 2022 May 18.

Critical care nurses' emotional intelligence: A scoping review.

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OBJECTIVE: Emotional intelligence is often described as the ability to know own emotions and to be aware of other emotions. The emotional intelligence of critical care nurses is a necessary competence for work performance. The aim of this review is to map the evidence on emotional intelligence of nurses working in this specific context.
METHODS: Scoping review based on Joanna Briggs Institute (JBI) guidance. Nurses as a population (P), critical care as a context (C) and emotional intelligence as a concept (C) were considered. Search was conducted using databases and electronic platforms such as CINAHL Complete, MEDLINE complete, Cochrane Central Register of Controlled Trials, Nursing & Allied Health Collection: Comprehensive (via EBSCOhost), MedLine (via PubMed), SCOPUS and Web of Science. From a total of 40 citations, nine articles have been included in the review.

RESULTS: The 9 articles emphasise the relevance of emotional intelligence in the professional experience, in emotional exhaustion and burnout prevention, in enhancing the safety culture of the sick, in contributing to organisational citizenship behaviour, and in resilience.
CONCLUSION: Emotional intelligence is a core competency of critical care nurses, with professional, personal and organisational implications.

DOI: 10.1016/j.enfcle.2022.04.005
PMID: 35597426 [Indexed for MEDLINE]

71. Front Psychol. 2018 Dec 21;9:2653. doi: 10.3389/fpsyg.2018.02653. eCollection 2018.

Resilience as a Mediator of Emotional Intelligence and Perceived Stress: A Cross-Country Study.

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Existing literature provides evidence of the connection between emotional intelligence and resilience, both concepts being adversely related to perceived stress. Nevertheless, there is little evidence from cross-cultural and/or cross-country studies of the simultaneous relationship between these psychological variables. The objective of this study was to address this lack of research, examining the associations between emotional intelligence, resilience and perceived stress in a cross-country context. A total sample of 696 undergraduate students from two universities in the United States and the Basque Country (an autonomous community in northern Spain) participated in the study. Structural equation modeling was used to examine the effects of emotional intelligence and resilience that may affect students' perceived stress. The results revealed that emotional intelligence functions as a negative predictor of perceived stress through the mediating variable resilience for the American and Basque students. The findings suggest that university students with better emotional intelligence and resilience present lower perceived stress. Thus, improving emotional intelligence and resilience could prevent students from suffering perceived stress in higher education. Implications and directions for further research are discussed; in particular, it is highlighted that intervention programs that improve both EI and resilience could be helpful in reducing perceived stress.

DOI: 10.3389/fpsyg.2018.02653
PMCID: PMC6308158
PMID: 30622503

72. G Ital Nefrol. 2018 Dec;35(6):2018-vol6.

[Artificial intelligence for future MD].

[Article in Italian]

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Health care workers need artificial intelligence. Artificial intelligence is a set of studies and techniques that tend to the realization of machines, which solve complex problems automatically, simulating or emulating human intelligence activities. Human intelligence is innate, creative, emotional, sporting, social in the collective and connected future. Knowledge is the faculty, act, mode, effect of taking possession, intellectually or psychologically, with systematic activity of any certain aspect of reality. The dates are given in the form of text, number, symbol, image, sounds that are used or stored in computers. Having many data or data does not mean having much information. Having a lot of information does not mean having a lot of knowledge. Symbolic reasoning uses symbolic logic, logical connectives, expert systems, production rules, genetic algorithms, validation, explanation, justification, verification of inference, heuristic research. The knowledge of symbolic reasoning is deterministic. Machine learning is the field of study that gives computers the ability to learn without being programmed to do so. Use algorithms for statistical and probability calculations, the learning phases may not be verifiable. They are mathematically structured human opinions, spoiled by the pre -understandings of those who design them, of those who want to look for something. The association between symbolic reasoning and automatic learning is excellent. The intelligence of health workers work connected and collective, develop knowledge bases to be subjected to symbolic reasoning, expert systems and rules to have deterministic knowledge. The deterministic knowledge subsequently elaborated by artificial intelligence will be returned to human intelligences.

PMID: 30550043 [Indexed for MEDLINE]

73. Conscious Cogn. 2017 Oct;55:172-178. doi: 10.1016/j.concog.2017.08.003. Epub 2017 Sep 5.

The relationship between fluid intelligence and sustained inattentional blindness in 7-to-14-year-old children.

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Previous researches have shown that people with higher fluid intelligence are more likely to detect the unexpected stimuli. The current study systematically

explored the relationship between fluid intelligence and sustained inattentional blindness in children. In Experiment 1, we measured one hundred and seventy-nine 7-to-14-year-old children's fluid intelligence and sustained inattentional blindness. The results showed that fluid intelligence was negatively related to sustained inattentional blindness only in 7-to-8-year-old children. In Experiment 2, we explored sustained inattentional blindness in sixty children with high Raven's scores. We found that compared with children who have average Raven's scores aged 11-to-12 years old, children with high Raven's scores were unable to better avoid sustained inattentional blindness. In general, this research implies that the relation between fluid intelligence and sustained inattentional blindness is weak. Fluid intelligence could predict sustained inattentional blindness only when children do not have enough perceptual capacities to complete the primary task.

DOI: 10.1016/j.concog.2017.08.003
PMID: 28886467 [Indexed for MEDLINE]

74. Philos Trans R Soc Lond B Biol Sci. 2016 Jan 5;371(1685):20150180. doi: 10.1098/rstb.2015.0180.

Neuronal factors determining high intelligence.

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Many attempts have been made to correlate degrees of both animal and human intelligence with brain properties. With respect to mammals, a much-discussed trait concerns absolute and relative brain size, either uncorrected or corrected for body size. However, the correlation of both with degrees of intelligence yields large inconsistencies, because although they are regarded as the most intelligent mammals, monkeys and apes, including humans, have neither the absolutely nor the relatively largest brains. The best fit between brain traits and degrees of intelligence among mammals is reached by a combination of the number of cortical neurons, neuron packing density, interneuronal distance and axonal conduction velocity--factors that determine general information processing capacity (IPC), as reflected by general intelligence. The highest IPC is found in humans, followed by the great apes, Old World and New World monkeys. The IPC of cetaceans and elephants is much lower because of a thin cortex, low neuron packing density and low axonal conduction velocity. By contrast, corvid and psittacid birds have very small and densely packed pallial neurons and relatively many neurons, which, despite very small brain volumes, might explain their high intelligence. The evolution of a syntactical and grammatical language in humans most probably has served as an additional intelligence amplifier, which may have happened in songbirds and psittacids in a convergent manner.

DOI: 10.1098/rstb.2015.0180
PMCID: PMC4685590
PMID: 26598734 [Indexed for MEDLINE]

75. PLoS One. 2023 May 5;18(5):e0285537. doi: 10.1371/journal.pone.0285537. eCollection 2023.

How does industrial intelligence affect regional innovation efficiency? Evidence from panel data of China's provinces.

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Innovation efficiency is an important manifestation of regional innovation capacity, and how to improve regional innovation efficiency is crucial to regional development. This study empirically explores the impact of industrial intelligence on regional innovation efficiency and the possible influence of approaches and mechanisms. The empirical results revealed the following. First, the development level of industrial intelligence can positively affect regional innovation efficiency, while beyond a certain level, its role in promoting regional innovation efficiency will weaken, exhibiting an inverted U-shaped effect. Second, compared with the application research by enterprises, industrial intelligence plays a stronger role in promoting the innovation efficiency of basic research by scientific research institutes. Third, human capital situation, financial development level, and industrial structure upgrading are three significant channels for industrial intelligence to promote regional innovation efficiency. Therefore, accelerating the development of industrial intelligence, formulating individualized policies for different innovative entities, and rationally allocating resources related to the development of industrial intelligence are needed to be taken to improve regional innovation.

DOI: 10.1371/journal.pone.0285537
PMCID: PMC10162518
PMID: 37146015 [Indexed for MEDLINE]

Conflict of interest statement: The authors have declared that no competing interests exist.

76. Cardiovasc Ultrasound. 2021 Aug 20;19(1):29. doi: 10.1186/s12947-021-00261-2.

Artificial intelligence in echocardiography: detection, functional evaluation, and disease diagnosis.

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Ultrasound is one of the most important examinations for clinical diagnosis of cardiovascular diseases. The speed of image movements driven by the frequency of the beating heart is faster than that of other organs. This particularity of echocardiography poses a challenge for sonographers to diagnose accurately. However, artificial intelligence for detection, functional evaluation, and disease diagnosis has gradually become an alternative for accurate diagnosis and treatment using echocardiography. This work discusses the current application of artificial intelligence in echocardiography technology, its limitations, and future development directions.

Plain Language Summary: 1. Application of artificial intelligence (AI) in echocardiography is now widely studied, and AI technique has the potential to optimize the diagnostic potential of echocardiography.2. Application of artificial intelligence in echocardiography is important in the following aspects: recognizing the standard section, cardiac cavity automatic segmentation, functional left ventricle assessment, and cardiac disease diagnosis.3. Standardized data collection and image annotation are essential for artificial intelligence in echocardiography.

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PMCID: PMC8379752
PMID: 34416899 [Indexed for MEDLINE]

Conflict of interest statement: The authors declare that they have no competing interests.

77. Int J Environ Res Public Health. 2021 Jun 5;18(11):6099. doi: 10.3390/ijerph18116099.

Schizophrenia: A Survey of Artificial Intelligence Techniques Applied to Detection and Classification.

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Artificial Intelligence in healthcare employs machine learning algorithms to emulate human cognition in the analysis of complicated or large sets of data. Specifically, artificial intelligence taps on the ability of computer algorithms and software with allowable thresholds to make deterministic approximate conclusions. In comparison to traditional technologies in healthcare, artificial intelligence enhances the process of data analysis without the need for human input, producing nearly equally reliable, well defined output. Schizophrenia is a chronic mental health condition that affects millions worldwide, with impairment in thinking and behaviour that may be significantly disabling to

daily living. Multiple artificial intelligence and machine learning algorithms have been utilized to analyze the different components of schizophrenia, such as in prediction of disease, and assessment of current prevention methods. These are carried out in hope of assisting with diagnosis and provision of viable options for individuals affected. In this paper, we review the progress of the use of artificial intelligence in schizophrenia.

DOI: 10.3390/ijerph18116099
PMCID: PMC8201065
PMID: 34198829 [Indexed for MEDLINE]

Conflict of interest statement: The authors declare no conflict of interest.

78. J Obstet Gynaecol Res. 2021 Aug;47(8):2577-2585. doi: 10.1111/jog.14818. Epub 2021 May 10.

Application of artificial intelligence in gynecologic malignancies: A review.

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With the development of machine learning and deep learning models, artificial intelligence is now being applied to the field of medicine. In oncology, the use of artificial intelligence for the diagnostic evaluation of medical images such as radiographic images, omics analysis using genome data, and clinical information has been increasing in recent years. There have been increasing numbers of reports on the use of artificial intelligence in the field of gynecologic malignancies, and we introduce and review these studies. For cervical and endometrial cancers, the evaluation of medical images, such as colposcopy, hysteroscopy, and magnetic resonance images, using artificial intelligence is frequently reported. In ovarian cancer, many reports combine the assessment of medical images with the multi-omics analysis of clinical and genomic data using artificial intelligence. However, few study results can be implemented in clinical practice, and further research is needed in the future.

DOI: 10.1111/jog.14818
PMID: 33973305 [Indexed for MEDLINE]

79. AJR Am J Roentgenol. 2019 Feb;212(2):259-270. doi: 10.2214/AJR.18.20391. Epub 2018 Nov 13.

A Review of the Role of Augmented Intelligence in Breast Imaging: From Automated Breast Density Assessment to Risk Stratification.

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OBJECTIVE: The goal of augmented intelligence is to increase efficiency and

effectiveness in practice. To achieve this, augmented intelligence technologies are being asked to perform a range of tasks, from simple to complex and quantitative. The development of these systems is increasingly important as screening becomes more personalized. This article will provide an overview of augmented intelligence in a variety of breast imaging applications.
CONCLUSION: The incorporation of AI and ML techniques in breast imaging provides important new tools that will deliver ways to "sharpen" trusted familiar tools (so-called "augmented intelligence") to support radiologists, not replace them. The first wave of medical imaging systems based on AI and ML has primarily used ML to fix the values of key imaging parameters to be adapted to the individual as part of personalized medicine. Artificial intelligence is the new tool in the radiologist's arsenal but will never replace the human qualities that are important in medicine-intellectual curiosity, passion, and drive.

DOI: 10.2214/AJR.18.20391
PMID: 30422711 [Indexed for MEDLINE]

80. Clin Imaging. 2023 Nov;103:109993. doi: 10.1016/j.clinimag.2023.109993. Epub 2023 Oct 6.

Improving radiology workflow using ChatGPT and artificial intelligence.

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Artificial Intelligence is a branch of computer science that aims to create intelligent machines capable of performing tasks that typically require human intelligence. One of the branches of artificial intelligence is natural language processing, which is dedicated to studying the interaction between computers and human language. ChatGPT is a sophisticated natural language processing tool that can understand and respond to complex questions and commands in natural language. Radiology is a vital aspect of modern medicine that involves the use of imaging technologies to diagnose and treat medical conditions artificial intelligence, including ChatGPT, can be integrated into radiology workflows to improve efficiency, accuracy, and patient care. ChatGPT can streamline various radiology workflow steps, including patient registration, scheduling, patient check-in, image acquisition, interpretation, and reporting. While ChatGPT has the potential to transform radiology workflows, there are limitations to the technology that must be addressed, such as the potential for bias in artificial intelligence algorithms and ethical concerns. As technology continues to advance, ChatGPT is likely to become an increasingly important tool in the field of radiology, and in healthcare more broadly.

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PMID: 37812965 [Indexed for MEDLINE]

Conflict of interest statement: Declaration of competing interest The authors

declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

81. Zhongguo Xue Xi Chong Bing Fang Zhi Za Zhi. 2022 Nov 10;34(5):453-457. doi: 10.16250/j.32.1374.2022198.

[Current status and prospects of artificial intelligence in schistosomiasis prevention and control].

[Article in Chinese; Abstract available in Chinese from the publisher]

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Schistosomiasis is a parasitic disease that seriously endangers human health and affects socioeconomic developments. Artificial intelligence technology has been widely used in clinical medical sciences, including tumor screening, and electrocardiogram, imaging and pathological analyses, which has potential for precision control of schistosomiasis. Currently, artificial intelligence technology has been employed for clinical assessment of schistosomiasis-associated hepatic fibrosis and ectopic schistosomiasis, prognostic prediction of advanced schistosomiasis, automated identification of Oncomelania hupensis and Schistosoma japonicum eggs and miracidia, epidemiological surveillance of schistosomiasis, and drug discovery. This review summarizes the advances in the applications of artificial intelligence technology in the management of schistosomiasis and proposes the prospects for the use of artificial intelligence in schistosomiasis elimination.

Publisher: ［摘要］
血吸虫病是一种严重危害人类健康、影响社会经济发展的寄生虫病。人工智能技术已广泛应用于肿瘤筛查、心电图、影像学与病理学分析等临床医学领域，并有望实现血吸虫病精准防控。目前，人工智能技术已应用于血吸虫病肝纤维化、异位血吸虫病临床评估，
晚期血吸虫病预后预测，钉螺、虫卵、毛呦自动检测，血吸虫病流行病学监测和药物发现等方面。本文对近年来人工智能技术在血吸虫病防控领域的应用进展与前景进行综述。.

DOI: 10.16250/j.32.1374.2022198
PMID: 36464266 [Indexed for MEDLINE]

82. J Oral Biol Craniofac Res. 2020 Oct-Dec;10(4):391-396. doi: 10.1016/j.jobcr.2020.07.015. Epub 2020 Jul 24.

Present and future of artificial intelligence in dentistry.

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The last decennary has marked as the breakthrough in the advancement of technology with evolution of artificial intelligence, which is rapidly gaining

the attention of researchers across the globe. Every field opted artificial intelligence with huge enthusiasm and so the field of dental science is no exception. With huge increases in patient documented information and data this is the need of the hour to use intelligent software to compile and save this data. From the basic step of taking a patient's history to data processing and then to extract the information from the data for diagnosis, artificial intelligence has many applications in dental and medical science. While in no case artificial intelligence can replace the role of a dental surgeon but it is important to be acquainted with the scope to amalgamate this advancement of technology in future for betterment of dental practice.

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PMCID: PMC7394756
PMID: 32775180

Conflict of interest statement: The authors declare No conflict of interest.

83. Coll Antropol. 2015 Jun;39(2):371-5.

The Relationship between Cognitive and Emotional Intelligence and High School Academic Achievement.

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The study investigated the relationship between intelligence, emotional intelligence and academic achievement in high school. The study was conducted within the standardization of two instruments for Croatian samples. A total of 369 high school students from the Republic of Croatia participated in the study. They completed the Naglieri Nonverbal Ability Test (NNAT)--a test of cognitive intelligence and the BarOn Emotional Quotient Inventory: Youth Version (EQ-i:YV). Academic achievement criteria were general school achievement, Croatian language and mathematics. Several regression analyses were conducted on the results. The results show that cognitive intelligence and the adaptability scale to be consistent predictors of academic achievement. Emotional intelligence was not shown to be a significant predictor of school success.

PMID: 26753453 [Indexed for MEDLINE]

84. Int J Psychol. 2015 Jun;50(3):240-4. doi: 10.1002/ijop.12111. Epub 2014 Nov 20.

Mediational role of parenting styles in emotional intelligence of parents and aggression among adolescents.

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The present study was designed to examine the relationship between parents' emotional intelligence and adolescents' aggression, through the mediation of parenting styles. Two hundred and twenty five undergraduate students (113 boys & 112 girls; age 17-18 years), from four universities in Pakistan, participated with their parents. The Parenting Styles and Dimensions Questionnaire (Robinson, Mandleco, Olsen, & Hart, 1995), and the Scale of Emotional Intelligence (Batool

& Khalid, 2011) were completed by parents. The Aggression Questionnaire (Buss & Perry, 1992) was completed by their adolescent offspring. Mediational path analysis supported our hypothesised model. Results indicate that emotional intelligence of parents indirectly links to aggression among offspring, through parenting styles. It was concluded that emotional intelligence training will help parents to improve their parenting styles, and it will lower the risk of aggression in their children.

DOI: 10.1002/ijop.12111
PMID: 25410534 [Indexed for MEDLINE]

85. Cogn Emot. 2013;27(5):783-99. doi: 10.1080/02699931.2012.739999. Epub 2012 Nov 8.

Nonverbal signals speak up: association between perceptual nonverbal dominance and emotional intelligence.

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Emotional communication uses verbal and nonverbal means. In case of conflicting signals, nonverbal information is assumed to have a stronger impact. It is unclear, however, whether perceptual nonverbal dominance varies between individuals and whether it is linked to emotional intelligence. Using audiovisual stimulus material comprising verbal and nonverbal emotional cues that were varied independently, perceptual nonverbal dominance profiles and their relations to emotional intelligence were examined. Nonverbal dominance was found in every participant, ranging from 55 to 100%. Moreover, emotional intelligence, particularly the ability to understand emotions, correlated positively with nonverbal dominance. Furthermore, higher overall emotional intelligence as well as a higher ability to understand emotions were linked to smaller reaction time differences between emotionally incongruent and congruent stimuli. The association between perceptual nonverbal dominance and emotional intelligence, and more specifically the ability to understand emotions, might reflect an adaptive process driven by the experience of higher authenticity in nonverbal cues.

DOI: 10.1080/02699931.2012.739999
PMID: 23134564 [Indexed for MEDLINE]

86. Hosp Top. 2022 Apr-Jun;100(2):55-61. doi: 10.1080/00185868.2021.1922113. Epub 2021 Jun 1.

The Influence of Emotional Intelligence on the Work Engagement of Clinical Leadership: Resilience as a Moderator.

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This study examined the moderating influence of resilience on the association

between emotional intelligence and work engagement in clinical leaders. The study population was leaders working in the emergency wards of some health facilities in Accra. A total of 310 leaders participated in the study by completing a self-reported questionnaire. The analysis of data showed that emotional intelligence makes a positive influence on work engagement in clinical leaders working in emergency departments. The moderating influence of Health facilities can improve work engagement in emergency settings by utilizing training programs to improve both emotional intelligence and resilience.

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PMID: 34058965 [Indexed for MEDLINE]

87. Praxis (Bern 1994). 2021 Jan;110(1):48-53. doi: 10.1024/1661-8157/a003597.

[Artificial Intelligence in Radiology - Definition, Potential and Challenges].

[Article in German; Abstract available in German from the publisher]

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Artificial Intelligence in Radiology - Definition, Potential and Challenges
Abstract. Artificial Intelligence (AI) is omnipresent. It has neatly permeated our daily life, even if we are not always fully aware of its ubiquitous presence. The healthcare sector in particular is experiencing a revolution which will change our daily routine considerably in the near future. Due to its advanced digitization and its historical technical affinity radiology is especially prone to these developments. But what exactly is AI and what makes AI so potent that established medical disciplines such as radiology worry about their future job perspectives? What are the assets of AI in radiology today - and what are the major challenges? This review article tries to give some answers to these questions.

Publisher: Zusammenfassung. Künstliche Intelligenz (KI) ist in aller Munde. Aus unserem Alltagsleben ist sie schon längst nicht mehr wegzudenken und hat sich dort an vielen Stellen bereits nahtlos integriert, ohne dass wir uns dessen immer vollständig bewusst sind. Auch im Gesundheitswesen befinden wir uns schon längt inmitten einer Revolution, die unser aller Alltag in der Zukunft verändern wird. Die Radiologie im Speziellen ist aufgrund ihrer fortgeschrittenen Digitalisierung und historisch bedingten Technik-Affinität besonders von diesen Entwicklungen betroffen. Doch was ist KI eigentlich genau und was macht KI so potent, dass etablierte Fachdisziplinen wie die Radiologie sich mit ihrer Zukunftsfähigkeit auseinandersetzen? Was kann KI in der Radiologie heute schon – und was kann sie nicht? Mit diesen Fragen beschäftigt sich der vorliegende Artikel.

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PMID: 33406927 [Indexed for MEDLINE]

88. Neuroimaging Clin N Am. 2020 Nov;30(4):393-399. doi: 10.1016/j.nic.2020.07.004. Epub 2020 Sep 18.

Brief History of Artificial Intelligence.

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This article reviews the history of artificial intelligence and introduces the reader to major events that prompted interest in the field, as well as pitfalls and challenges that have slowed its development. The purpose of this article is to provide a high-level historical perspective on the development of the field over the past decades, highlighting the potential of the field for transforming health care, but also the importance of setting realistic expectations for artificial intelligence applications to avoid repeating historical cyclical trends and a third "artificial intelligence winter."

DOI: 10.1016/j.nic.2020.07.004
PMID: 33038991 [Indexed for MEDLINE]

89. Front Surg. 2022 Aug 11;9:885599. doi: 10.3389/fsurg.2022.885599. eCollection 2022.

The application of artificial intelligence in spine surgery.

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Due to its obvious advantages in processing big data and image information, the combination of artificial intelligence and medical care may profoundly change medical practice and promote the gradual transition from traditional clinical care to precision medicine mode. In this artical, we reviewed the relevant literatures and found that artificial intelligence was widely used in spine surgery. The application scenarios included etiology, diagnosis, treatment, postoperative prognosis and decision support systems of spinal diseases. The shift to artificial intelligence model in medicine constantly improved the level of doctors' diagnosis and treatment and the development of orthopedics.

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PMCID: PMC9403075
PMID: 36034349

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90. Pak J Med Sci. 2021 Jan-Feb;37(1):288-291. doi: 10.12669/pjms.37.1.3351.

Artificial Intelligence: Help or Hindrance for Family Physicians?

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The use of Artificial Intelligence (AI) and related technologies is rapidly increasing and its application in clinical practice is a promising area of development. Artificial Intelligence can be a solution in the future as a physician's new assistant; AI-physician combinations can act like models of 'peaceful co-existence'. While it has the potential to mold many dimensions of patient care and can augment quality improvement, it cannot replace a family physician's diagnostic intelligence, empathy and relationships. Physicians need to strike a balance between these combinations for better health outcomes without increasing patients' frustration.

DOI: 10.12669/pjms.37.1.3351
PMCID: PMC7794111
PMID: 33437293

91. Rev Med Interne. 2020 Mar;41(3):189-191. doi: 10.1016/j.revmed.2019.12.001. Epub
2019 Dec 31.

[Artificial intelligence: Guidelines for internists].

[Article in French]

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Comment in
    Rev Med Interne. 2020 Jun;41(6):431-432.

Following the emergence of open public databases and connected objects, big data and artificial intelligence are developing rapidly, especially in medicine, with many opportunities ranging from complex diagnostic assistance to real-time statistical analysis. In order to promote their development and guide their use in the field of internal medicine, guidelines and recommendations are needed. First of all, this article seeks to clarify the concepts of big data and artificial intelligence and the correlations between each other, and then to give an overview of the progress made at European level in this rapidly expanding field.

DOI: 10.1016/j.revmed.2019.12.001
PMID: 31898996 [Indexed for MEDLINE]

92. J Family Med Prim Care. 2019 Nov 15;8(11):3461-3464. doi: 10.4103/jfmpc.jfmpc_155_19. eCollection 2019 Nov.

Artificial intelligence enabled healthcare: A hype, hope or harm.

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In this paper, we have described the health care problem (maldistribution of doctors) in India. Later, we have introduced the concept of artificial intelligence and we have described this technology with various examples, how it is rapidly changing the health care scenario across the world. We have also described the various advantages of artificial intelligence technology. At the end of the paper, we have raised some serious concerns regarding complete replacement of human based health care technology with artificial intelligence

technology. Lastly, we concluded that we have to use artificial intelligent technology to prevent human sufferings/health care problems with proper caution.

DOI: 10.4103/jfmpc.jfmpc_155_19
PMCID: PMC6881935
PMID: 31803636

93. Dement Geriatr Cogn Disord. 2017;44(3-4):153-159. doi: 10.1159/000479276. Epub 2017 Aug 24.

Cortical Functional Connections and Fluid Intelligence in Adolescent APOE ε4 Carriers.

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AIMS: This study examined differences in corticocortical communication between adolescent ε4 carriers (ε4+) and noncarriers (ε4-) during a fluid intelligence task (Comprehensive Test of Nonverbal Intelligence [CTONI]).
METHODS: Sixteen ε4+ and 20 ε4- individuals aged 13-15 years performed the CTONI while real-time EEG signals were acquired. Inter- and intrahemispheric coherences were analyzed.
RESULTS: The ε4+ subjects exhibited lower inter- and intrahemispheric coherences than the ε4- individuals.
CONCLUSION: ε4 carriers have lower corticocortical communication than noncarriers during an intelligence task, implying that carrying the ε4 allele may reduce brain networking in adolescence, several decades before the onset of Alzheimer disease.

DOI: 10.1159/000479276
PMID: 28848214 [Indexed for MEDLINE]

94. Zh Vyssh Nerv Deiat Im I P Pavlova. 2013 Mar-Apr;63(2):218-26. doi: 10.7868/s004446771302007x.

[Intelligence and creativity changes induced by pathological growth of space-occupying cerebral lesion].

[Article in Russian]

Perfil'ev AM, Razumnikova OM, Stupak VV.

Creativity and intelligence changes depending on tumor localization in frontal or parietal cortex before surgical procedure in 24 patients in comparison with control group are studied. Brain damage-induced intelligence impairment and a decrease of fluency, flexibility of figural divergent thinking, and originality of verbal one without specificity of tumor localization were found. Intelligence decrease was more presented while performing of figural tasks and least of all in verbal ones. The left prefrontal brain damage induced a decrease of all components of intelligence and a trend to a decrease of verbal creativity and

figural fluency. The right parietal brain lesion was more associated with a decline of divergent thinking originality.

DOI: 10.7868/s004446771302007x
PMID: 23866608 [Indexed for MEDLINE]

95. J Forensic Odontostomatol. 2023 Aug 27;41(2):30-41.

Artificial intelligence in forensic medicine and forensic dentistry.

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This review article aims to highlight the current possibilities for applying Artificial Intelligence in modern forensic medicine and forensic dentistry and present the advantages and disadvantages of its use. For this purpose, the relevant academic literature was searched using PubMed, Web of Science and Scopus. The application of Artificial Intelligence in forensic medicine and forensic dentistry is still in its early stages. However, the possibilities are great, and the future will show what is applicable in daily practice. Artificial Intelligence will improve the accuracy and efficiency of work in forensic medicine and forensic dentistry; it can automate some tasks; and enhance the quality of evidence. Disadvantages of the application of Artificial Intelligence may be related to discrimination, transparency, accountability, privacy, security, ethics and others. Artificial Intelligence systems should be used as a support tool, not as a replacement for forensic experts.

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PMID: 37634174 [Indexed for MEDLINE]

Conflict of interest statement: The authors declare that they have no conflict of interest.

96. Clin Exp Optom. 2023 Aug;106(6):569-579. doi: 10.1080/08164622.2023.2197578. Epub 2023 Apr 20.

A guide to optometrists for appraising and using artificial intelligence in clinical practice.

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Artificial intelligence systems are becoming increasingly available as diagnostic aids for optometric practice. These perform well but are often

'black-box' systems offering little or no insight into how a decision was reached. While there is potential for artificial intelligence to improve patient outcomes, clinicians without training in computer science may find it difficult to ascertain whether these technologies are suitable for their practice, or how they should be used. This review provides an overview of how artificial intelligence systems work in optometry, their strengths, weaknesses, and regulatory considerations. A checklist is provided for appraising a system, covering regulatory approvals, ascertaining what the system can and cannot do, how it can be used in practice, whether it is suitable for the clinical population, and whether the outputs can be explained. Artificial intelligence has the potential to improve accuracy and efficiency in many areas of optometry if used correctly, and should be embraced by clinicians as an assistive tool.

DOI: 10.1080/08164622.2023.2197578
PMID: 37078176 [Indexed for MEDLINE]

97. Physiol Behav. 2021 Nov 1;241:113564. doi: 10.1016/j.physbeh.2021.113564. Epub 2021 Sep 10.

Modifications of academic competences and intelligence in a university grade.

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The aim of the study was to analyze differences in intelligence, academic competences, and academic achievement by gender and academic course in sports science university students. To reach the study aim we analyzed in 267 (226 males and 41 females) first and last year students' degree the variables of intelligence (Reasoning scale of the Primary Mental Abilities Test), academic achievement and self-perception of 40 academic competences (30 general competences and 10 specific competences). We found how last year degree students presented higher general and specific competences than first year students, not presenting differences in intelligence and academic achievement. Female students presented higher academic achievement and higher values in some general and specific competences but not in intelligence.

DOI: 10.1016/j.physbeh.2021.113564
PMID: 34516958 [Indexed for MEDLINE]

98. Forensic Sci Int Synerg. 2021 Aug 24;3:100162. doi: 10.1016/j.fsisyn.2021.100162. eCollection 2021.

Forensic intelligence: Data analytics as the bridge between forensic science and investigation.

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Scientists should not play a role in investigations nor should investigators play a role in the scientific analyses. One way to bridge the relationship between the forensic scientist and the police investigator is through an Intelligence Analyst (IA) who is part of the forensic services operation. The IA offers the ability to walk between the role of scientist and law enforcement, receiving data after completion of scientific analyses and translating the information into actionable intelligence. The additional bridging and translating services represent a paradigm shift with increased emphasis on investigative contributions from forensic analysis. Forensic intelligence incorporates forensic data early in an investigation in a holistic case approach that incorporates possible datasets and information that could be relevant to the investigation. We present a brief review of the value added when an IA provides the bridge between the forensic laboratory and police investigators to enhance the use of forensic evidence.

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PMCID: PMC8403548
PMID: 34485884

Conflict of interest statement: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

99. Psychol Health Med. 2016;21(2):221-5. doi: 10.1080/13548506.2015.1017825. Epub 2015 Mar 2.

Self-esteem, body-esteem, emotional intelligence, and social anxiety in a college sample: the moderating role of weight.

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To examine the relationships between self-esteem, body-esteem, emotional intelligence, and social anxiety, as well as to examine the moderating role of weight between exogenous variables and social anxiety, 520 university students completed the self-report measures. Structural equation modeling revealed that individuals with low self-esteem, body-esteem, and emotional intelligence were more likely to report social anxiety. The findings indicated that obese and overweight individuals with low body-esteem, emotional intelligence, and self-esteem had higher social anxiety than others. Our results highlight the roles of body-esteem, self-esteem, and emotional intelligence as influencing factors for reducing social anxiety.

DOI: 10.1080/13548506.2015.1017825
PMID: 25726711 [Indexed for MEDLINE]

100. Behav Genet. 2014 Nov;44(6):549-77. doi: 10.1007/s10519-014-9646-x. Epub 2014 Mar 7.

Genes, evolution and intelligence.

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I argue that the g factor meets the fundamental criteria of a scientific construct more fully than any other conception of intelligence. I briefly discuss the evidence regarding the relationship of brain size to intelligence. A review of a large body of evidence demonstrates that there is a g factor in a wide range of species and that, in the species studied, it relates to brain size and is heritable. These findings suggest that many species have evolved a general-purpose mechanism (a general biological intelligence) for dealing with the environments in which they evolved. In spite of numerous studies with considerable statistical power, we know of very few genes that influence g and the effects are very small. Nevertheless, g appears to be highly polygenic. Given the complexity of the human brain, it is not surprising that that one of its primary faculties-intelligence-is best explained by the near infinitesimal model of quantitative genetics.

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PMID: 24604063 [Indexed for MEDLINE]