COMMENT

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Clinical research

Preprint Citation Index

Sir, preprints are original manuscripts that authors post to Open Access servers before formal peer-review process.[1] I write this to inform readers of a recently launched Preprint Citation Index by Clarivate on its Web of Science platform, which will allow researchers to swiftly locate and integrate preprints into their workflows, improving productivity. The Preprint Citation Index covers several preprint repositories, including arXiv, bioRxiv, ChemRxiv, medRxiv, and Preprints.org, with additional repositories to be added over time. The scope of medRxiv encompasses all aspects of healthcare, including dentistry and oral medicine.[2]

Due to the increasing use of preprints in recent years, they are becoming an important tool within the scientific domain for accessing cutting-edge research. The COVID-19 pandemic has highlighted the advantages of preprints for rapid dissemination of information and promoting transparency in clinical research. However, it has also revealed the risks of disseminating false information through preprints. Preprints should be interpreted with caution, as the paper that currently lacks scientific scrutiny by an expert editorial panel and external peer-review process can be potentially incorrect. If preprints are not credible, especially in biomedical research, treatment strategies based on flawed studies or low quality of evidence can harm patients.[1]

Recent technological advancements, like ChatGPT, have been the subject of numerous preprints posted to various platforms. These papers have helped identify both the threats and opportunities posed by AI bots, highlighting the importance of preprints in keeping the scientific community informed about new developments and their potential impact on society.[3] While preprints offer many benefits, it is critical to maintain quality control. By ensuring that preprints are accurate and trustworthy, researchers can continue to use them as a valuable tool for advancing knowledge and informing policy decisions.[1,3]

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AI's other challenges

Sir, recent correspondence demonstrated that the ubiquitous artificial intelligence (AI) chatbot ChatGPT can be used to create submissions journals and pass written exams in the health professions.[1]

ChatGPT's success in passing exams has re-energised long-standing conversations about authentic assessment in health professional education;[2] its authorship capabilities should similarly invite us to re-examine long-standing issues within academic publishing. AI bots, like ChatGPT, can only produce text based on the texts they have to learn from; as evidenced by examples producing racist, misogynistic and vaccine-hesitant texts, depending on the data available to learn from.[3] This implies that the more extensive and stereotypical the language learning set for AI bots, the easier it is for them to emulate this genre.

Published clinical research is a vast corpus, increasing in size every year, whilst at the same time displaying characteristics that limit its utility and relevance. It is this context, rather than the potential for plagiarism, that AI should force us to confront. AI can produce texts that emulate what it learns from, but it cannot think, and it cannot innovate. It cannot develop new experimental methods, and it cannot imagine experimental results that differ from what it has previously seen. In academic publishing, including in dentistry, all AI can do is echo the prevailing publication bias. If publications produced with the aid of AI are a concern, then the best way to address this is to prioritise the publication of more diverse, controversial, and innovative methodologies and results.

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Artificial intelligence

AI-powered neural implants

Sir, neural implants powered by artificial intelligence (AI) have the potential to revolutionise communication and improve quality of life for individuals, particularly those suffering from Alzheimer's disease. Recent research indicates that AI-powered Brain Machine Interfaces (BMIs) can effectively identify and track the progression of Alzheimer's, leading to earlier diagnosis and intervention.[1] This early identification may slow the disease's progression, improving patient outcomes.

Moreover, AI-driven neural implants offer the ability to detect and monitor

changes in brain activity, allowing medical professionals to tailor treatment plans and medication regimens to individual patients' needs. This personalised approach to therapy has the potential to optimise medical resources and improve patient outcomes.[2] For individuals with Alzheimer's disease, BMIs offer a unique opportunity to enhance communication and overall quality of life. Studies have shown that BMIs can detect and identify denture trackers in edentulous Alzheimer's patients, enabling clearer expression of their needs.[3,4] Additionally, AI-powered brain implants could potentially allow patients to convey their thoughts and emotions without the need for language, further improving their quality of life.

The history of BMIs can be traced back to Hans Berger's invention of the electroencephalogram in 1924. However, it was not until the 1970s that the term 'Brain Machine Interface' first appeared in scientific literature. Since then, the field has progressed significantly, with companies such as Neuralink, founded by Elon Musk,[5,6] working towards the goal of enhancing human cognitive and sensory capabilities.

In conclusion, AI-powered neural implants have the potential to transform the field of medicine, particularly in the realm of Alzheimer's disease treatment. By enabling early diagnosis and tailored treatment plans, these devices have the potential to improve patient outcomes and overall quality of life.

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Holistic dentistry

A partnership between occupational therapy and dentistry

Sir, it is clear that the dental environment and procedures can make a visit to the dentist an unpleasant and challenging experience for autistic children and adolescents and act as a barrier to care. Sensory sensitivities associated with autism can also pose challenges for the dental team, impacting the provision of dental care.[1] As a result, autistic children and adolescents are more likely than their neurotypical peers to receive treatment under general anaesthesia.[1]

Our team is collaborating with Stacey Venner, occupational therapist (OT) and experienced dental nurse who encountered first-hand the barriers to dental engagement for those from the autistic community and identified a need for multi-professional working that incorporates an occupational therapy perspective. Occupational therapy could be an ideal profession to assess and, where required, to provide a care plan for specific care needs of patients prior to dental visits.

The particular characteristics of occupational therapy could be of benefit to improving the delivery of person-centred dental care:

- Occupational therapy is a profession that is focused on identifying a person's emotional, social, and physical needs and facilitating changes to improve their overall health and wellbeing. OTs have the skills to provide appropriate strategies to increase independence and promote health and wellbeing
- OTs seek to analyse and support the participation of people in daily activities including self-care. This can include identifying the barriers to good oral health and access to dental care. They can provide support in relation to many areas associated with oral health, including brushing teeth and diet
- OTs are aware of sensory needs and sensitivities. They are well placed to advise on reasonable adaptations that can improve the environment for children and adolescents with sensory differences.

Traditionally, OTs use a person-centred, holistic approach whereby they work together with the service user to help tackle barriers and facilitate personal goals. In addition, OTs are skilled to offer universal, targeted and specialist levels of service including training,

mentoring, consultation and group work, working collaboratively across services and external agencies, thus having a positive impact on the wider community.

The authors are unaware of any services in the UK where OTs have partnered with dental services. However, studies conducted in the US have shown that such a collaboration may help in reducing some of the barriers that autistic people have in relation to dental care by adapting the dental environment.[2] We propose that further work in the UK is warranted to fully explore how OTs and dental teams can work together for patient benefit.

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Dental memberships

Nothing misleading

Sir, we have the greatest of admiration for Professor Nairn Wilson whose contribution to the dental profession has been consistently outstanding and beyond anything that most of us could hope to achieve. Nevertheless, we would, respectfully, like to put an opposing view in response to his letter 'Updating postnominals' in this journal.[1]

Many general dental practitioner colleagues spent countless hours, over years and months, to pass fellowship and membership examinations of the former FGDP(UK). Professor Wilson writes that continuing use of the associated postnominals, 'could be considered misleading, specifically to patients, and to contravene the GDC's guidance on advertising'. It could, however, be argued that it is unprofessional not to inform patients of appropriate professional achievements.

Professor Wilson's letter appears to represent his opinion but where is the evidence that there is anything unprofessional or illegal about informing patients, via postnominals, of professional examinations which have been passed and hard earned? We are not aware that this has ever been