BJPsych | The British Journal of Psychiatry (2019)
215, 441–442. doi: 10.1192/bjp.2019.136

Kaleidoscope

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With the number of trainees choosing psychiatry up by a third this year, we check in on the 2012 Royal College of Psychiatrists call for medical schools to take a more integrated approach to psychiatric training. De Cates and colleagues[1] evaluate the impact of their curriculum redesign at Warwick with a focus on case-based learning that emphasised a more authentic presentation of symptoms, in contrast to the traditional orientation around diagnoses. Those educated in the new curriculum had overall more positive attitudes towards psychiatry, held fewer negative views and indicated that psychiatry helped inform their medical and surgical specialities more so than those in the old structure, despite the placement being shortened to 6 weeks. Welcome steps in the right direction regardless of recruitment numbers. However, other studies have shown clinical experiences have more impact than classroom-based learning, a finding echoed here, with many more students commenting on their placement learning than that within their modules. So, while embracing the gains of curriculum redesign, we remind you of your incredibly important role in whether or not future cohorts #choosepsychiatry.

Scientists are stereotypically portrayed to be eccentric, nerdy, awkward, dull, isolated and elitist. They are also overwhelmingly white and male, and the reality is that the public sees us collectively as 'other'. In the 1990s, the X-files' Dr Dana Scully was perhaps the first depiction of a multidimensional female character in STEM (science, technology, engineering and mathematics). Her objectivity, strength and brilliance were a revelation for many and last year 'The Scully Effect' was confirmed to have positively influenced women's perception of, and involvement in, STEM. Modern portrayals have become more balanced, but pervasive stereotypes about women and marginalised groups continue. Jarreau *et al* explored how humanised visual content on Instagram had an impact on the perceptions and public trust about scientists.[2] They created content designed to look like aggregated posts from a 'Scientists of Instagram' account or the control 'Humans of Broadway'. Participants ($n = 1620$) were asked questions about scientists in general as well as the more specific questions about the individuals whose posts they had seen. The group subscribed to the general scientist stereotypes of being male, highly competent but moderately cold as compared with controls. Scientists who 'selfied' were judged significantly warmer than those who posted science-only scenes, with no difference in perceived competence. Exposure to depictions of female scientist selfies created a positive shift away from the belief of STEM as a male field, as well as increasing ratings of warmth in all scientists. Importantly, though women were thought to be significantly warmer overall they were not judged to be less competent than men scientists. However, it is worth noting that the female scientists were consistently thought to be more attractive than the men, and beauty is associated with a host of positive attributes, including intelligence. The representations of scientists and online visibility, especially of underrepresented scientists, can help counter outgroup stereotypes and promote public trust. Social media gives us the opportunity to develop novel two-way relationships. The authors give key advice on maximising your online presentation: be genuine, share stories from your daily life as a scientist, talk about your motivations and struggles, invite viewer participation and open up the scientific process.

Delineating the depressions I: factors predicting response to antidepressants. We increasingly accept major depressive disorder (MDD) as an umbrella term for a phenotype with varying aetiologies, clinical presentations and outcomes. Problematically, most studies just group all MDD together, and this might be one of the reasons for the small group differences between most interventions over placebo. Better understanding these depressions would aid personalised effective care, reducing time wasted with treatments unlikely to help. In an 8-week multisite double-blind randomised controlled trial of sertraline versus placebo, Webb *et al* used machine learning and a Personalised Advantage Index that identified variables that moderated response to medication.[3] As well as clinical and sociodemographic factors, they recorded various endophenotype measures: higher symptom severity and neuroticism, older age, fewer deficits in cognitive control and employment predicted positive response to sertraline. Their model will require prospective testing.

Delineating the depressions II: factors predicting differential response to antidepressants and cognitive–behavioural therapy. Boschloo *et al* note that at a population level there is little overall to distinguish the two major interventions for MDD.[4] Their meta-analysis of individual patient-level data from 17 randomised controlled trials, allowed them to explore changes in specific symptoms, rather than total scale changes, on the 17-item Hamilton Rating Scale for Depression. Five symptoms showed greater improvement in the medication group: 'feelings of guilt', 'suicidal thoughts', 'psychic anxiety', 'general somatic symptoms' and 'depressed mood'. The effect sizes were small, but clinically relevant. Network estimation techniques showed that the first four of these were 'direct' effects of the medication – that is to say improvements were independent of any other factors – whereas changes in 'depressed mood' were 'indirect' and only occurred in those who also showed gains in other symptoms. No differences were seen on the other 12 items. As well as potentially further assisting 'predictive psychiatry', findings such as these help consider mechanisms of action of different interventions and the underlying pathology, rather than viewing them as 'cure-alls' for an overarching condition or diagnosis.

Delineating the depressions III: atypical depression. The construct of atypical depression has long been debated; characterised by individuals with MDD, weight gain and excessive sleep – often with poor outcomes. Brailean *et al* evaluated the data of 2305 individuals from the UK biobank who had completed the Mental Health Questionnaire and met criteria for MDD with these symptoms.[5] Compared with those with non-atypical MDD, they had an an earlier age at onset, more severe and longer lasting episodes that were more likely to recur. Atypical depression was associated with female gender and a raft of unhealthy behaviours and illnesses: smoking, social isolation, poor levels of physical exercise, greater deprivation and adversity, cardiovascular disease and metabolic syndrome. The findings support atypical depression as a valid MDD subcategory, these biobank data estimate its prevalence at 6.5% of cases of major depression. Further work will need to explore if earlier intervention in this group can limit some of these adverse physical health outcomes. Three papers that add succour to depression being amenable to subtyping with potential clinical utility in predictive management.

Cannabis research I: what is cannabis? There are two primary subcategories of the cannabis sativa plant: hemp and marijuana. The former is characterised by <0.3% of tetrahydrocannabinol (THC), the main psychoactive ingredient, whereas marijuana has concentrations >0.3%, and more usually 10–23%. In contrast, cannabidiol

(CBD), the putative therapeutic phytochemical tends to be higher in hemp-type cannabis than commercially available marijuana-types. Commercially available variants are usually labelled by strain (sativa, indica or hybrid sativa-indica) and a dry-weight percentage of THC and CBD. Whereas purveyors of these products maintain there are differences in medicinal and psychoactive effects of these strains, genetic analyses have not supported this. In the USA, medical research on cannabis is conducted on supplies provided through a single licenced provider, the National Institute on Drug Abuse (NIDA), at four THC concentrations: <1%, 1–5%, 5–10% and >10%, with four identical CBD bands. However commercial cannabis (available in the states of Colorado, Washington and California) is not 'regulated' in the same way. Schwabe *et al* ask whether, therefore, academics are studying the same thing consumers are taking.[6] They extracted and compared the DNA of 49 different cannabis groups, of which two were NIDA strains. The remainder were wild hemp (5), cultivated hemp (4) and 35 drug-type strains that were subdivided into sativa, indica and hybrid. Pairwise genetic differences were computed for each of the 49 samples: consistently, the two NIDA samples aggregated with the nine hemp samples (wild, cultivated), but not with the other 35 samples of commercially available substances. Scientists aim for consistency, hence using the same strain; however, these results show their current NIDA 'stock' is genetically quite different from those that most medicinal and recreational users are accessing, raising the important question of how generalisable any data will be in real-life situations.

Cannabis research II: what are the predictors of transition from illicit drug use to psychosis, and from such psychotic episodes to schizophrenia? The epidemiological and population-based risk data are robust; our challenge has always been applying this to individuals in front of us in clinic. Kendler *et al* evaluated national database data from over 7500 individuals with a substance-induced psychotic disorder between 1997 and 2015.[7] The cumulative risk for progressing from a drug-induced psychosis to schizophrenia was just over 11%, somewhat lower that other studies on the topic. As you might expect it was highest (and earliest onset) when caused by cannabis and was lowest (and latest) when caused by alcohol. Younger age at onset, male gender and further episodes of substance use were predictive of worse outcomes. Fascinatingly, family histories of substance misuse increased risk of progression from drug use to a psychotic episode more than family histories of psychosis, but had no impact in conversion to schizophrenia. However, familial risk scores for (non-affective) psychoses did predict this second change. Somewhat provocatively, but not unreasonably, the authors therefore propose that those who develop schizophrenia after a drug-induced psychosis represent a cohort of vulnerable individuals 'tipped over' by drug use, and we should not see this as a syndrome related to drug exposure.

Finally, 'every man thinks meanly of himself for not having been a soldier' taught Samuel Johnson. What are you willing to die for – reviewer two's freedom of speech to trash your research? 'Willingness to fight and die' (WFD) is the scientific measure, conveying a readiness to incur enormous personal sacrifice for what is perceived as a greater cause. This has been used in many field studies, including times of warfare and entrenched conflict. Findings show a high WFD tends to be predicted by an individual's perceived righteousness rather than cause effectiveness, and is insensitive to quantity such as lives lost or saved. Pretus *et al* investigate neuroimaging correlates, using a sample of Pakistani Kashmiri nationals supporting their local struggle.[8] Their preparedness to fight and indeed die for this cause was explored through the WFD scale during neuroimaging. Higher WFD was associated with increased ventromedial prefrontal cortex (vmPFC) and decreased dorsolateral (dlPFC) activation, and decreased connectivity between these two regions. The findings are interesting as they show a willingness to fight and die depends upon decision-making linked to brain regions involved as a global comparator subjective value (the vmPFC) and not that encoding and integrating costs (the dlPFC). All animals will fight, sometimes mortally so; only humans seem to have the foresight of being able to weigh up such likelihood in advance, and to proceed even if they know it is to their deaths.

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https://doi.org/10.1192/bjp.2019.136 Published online by Cambridge University Press