

Kaleidoscope

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Tapping into your New Year resolutions, we present some cautionary data to consider. Recent research on novel addiction types suggests that, in addition to hunger, the urge to eat is considerably influenced by environmental cues. Obese individuals have been shown to be more sensitive to these, with subsequent stronger craving and larger portion sizes. Neurobiologically, this has been linked with pathological alterations to cue-triggered motivational responses in the nucleus accumbens (NAc) parallel to those seen in drug addiction. Oginsky *et al*¹ investigated the effects of a junk-food diet on obesity-susceptible and obesity-resistant rats. Glutamatergic calcium-permeable AMPA receptor (CP-AMPA) functioning in the NAc showed more rapid and long-lasting (for weeks after cessation of junk-food consumption) increases in the obesity-sensitive group. CP-AMPA receptors mediate cue-triggered food seeking, and their changes in the brain occurred *before* weight gain. The data support the concept that 'junk food addiction' induced by the consumption of fatty and high-sugar foods may be contributing to the obesity epidemic.

The American Psychiatric Association recently identified the phenomenon of internet gaming disorder (IGD), something only too likely to prod the hornets' nest of diagnostic system validity, with a discussion around the separation of 'passionate engagement and pathology'. Proposed criteria model other dependency syndromes, including preoccupation, withdrawal symptoms, tolerance, loss of control, and misleading others about use. Przybylski and colleagues² investigate, analysing data from four large international surveys (total $N=18\,932$). Applying the proposed APA guidance, more than 3 out of 4 who played computer games did not report *any* symptoms of IGD, and only between 0.3 and 1.0% might qualify for a potential acute diagnosis. The authors state that current evidence suggests that internet-based games are significantly less addictive than gambling. So, overall, perhaps time to lay off the Christmas chocolates, but maybe just one more round of Grand Theft Auto V and in case it helps, we're reliably informed by Santa's elves that the findings equally apply to adults playing Pokémon Go on their phones as they do to children on PlayStations.

Depending on your politics, the imminent US Presidential inauguration may be proving a sobering commencement to 2017. The US election was spectacularly miscalled by organisations relying on population polls, which were presumably recruited with enormous selection bias; otherwise, people just enjoyed lying about their voting intentions (American documentary-maker Michael Moore was seemingly alone in being presidentially prescient: <http://michaelmoore.com/trumpwillwin/>). Can we obtain better data on individuals' attitudes to 'others' in an increasingly polarised world seemingly bored of 'evidence'? A timely paper by Bansak *et al*³ explores attitudes to asylum seekers in 18 000 eligible voters across 15 European countries, based on perceptions of economic, humanitarian and religious factors driving claims for asylum. Each participant was asked to review the profiles of 10 asylum seekers, which included: competency in the host country language, previous economic status, religion, consistency of their asylum testimony, gender, age, country of origin, and vulnerability (including post-traumatic stress disorder (PTSD), victim of torture, no surviving family and physical disability). The outcome was the probability of being

accepted as an asylum seeker, with predictors being profile features and adjustment for the participant's political ideology, age, education and income status.

Strikingly, study *participant* variables – age, education level, income, political ideology – made practically no difference to the probability of acceptance, in stark contrast to the profile of asylum seekers. Aspects that most increased probability of acceptance as an asylum seeker were that they spoke the host language fluently, were previously a doctor or teacher, and a victim of torture. Factors that reduced probability of acceptance were major inconsistency in asylum testimony, having no host-language competency, being an older male, migrating for economic opportunities, and being of Muslim faith. To bring it, perhaps uncomfortably, closer to home, the UK (along with the Czech Republic) had the lowest overall probability of acceptance, although we face among the smallest per capita rate of actual asylum applications. A moment to reflect on the wisdom of that greatest of Republican Presidents, Abe Lincoln, who said in his own inauguration speech 'with malice towards none; with charity for all'.

Supported accommodation may be ubiquitous but data on its effectiveness can sometimes feel in as short supply as the accommodation itself. It is heartening to see Helen Killaspy and colleagues' survey⁴ on quality of life, autonomy, satisfaction, and costs associated with mental health supported accommodation in England. There are three main types: residential that is 24-hour staffed, with meals, medications and cleaning provided; supported housing that focuses on rehabilitation to independent living, with varying staff input; and floating outreach that has off-site professional input. In this work, satisfaction with care was similar across all three types. Perhaps unsurprisingly, residential care was the most expensive (mean of £466 687 p.a.) and provided lower levels of autonomy to residents, but looked after individuals with the most need. The quality of care was considered best in supported housing, and those placed there (and in floating outreach) were most socially included, but faced higher levels of crime. Quality of life was lowest for those in floating outreach. What does it all mean? Supported housing is cost-effective, but there are risks associated with greater autonomy. Mental health maintained housing is an essential part of graduated discharge support, and provides for about 60 000 individuals in England. It comes at a considerable cost, and too few studies have evaluated its effectiveness: frankly, there is not enough work of this type.

We previously described⁵ the similarities between lethal aggression in humans and other primates. Whether these patterns in lethal aggression are socioculturally driven (competition for resources) or 'nature' (highly heritable and a feature of the species driven by evolutionary pressure) has remained uncertain and the topic of much debate. A new paper by Gómez *et al*⁶ describes how within-species (conspecific) violence is a feature of many mammalian species and that a species is more likely display lethal aggression if their ancestors did also. The authors constructed a phylogenetic tree for 1024 mammals summarising a total of four million deaths attributable to conspecific lethal aggression; for humans, they used data from 600 populations spanning from the Palaeolithic period to present era (which estimate 2% of human deaths have historically been from interpersonal violence). They derived a 'phylogenetic signal' (λ) that described whether levels of violence in closely related species were different to those expected by chance (e.g. Brownian evolution), and found that this signal clustered in the phylogenetic tree, suggesting that 'violent' species ancestry provides for more violent descendant species. Then, they analysed the levels of conspecific lethal aggression by groups of social *v.*

solitary, and territorial *v.* non-territorial, species. Their findings suggest that social and territorial species have significantly higher levels of conspecific lethal aggression than solitary and non-territorial species. A quick eyeballing of their tree reveals that tree-shrews – alongside primates – appear particularly feisty, as do the ancestors of odd-toed ungulates (the common ancestor of the contemporary rhinoceri). We humans occupy a position in what the authors call a ‘particularly violent mammalian clade’ and have inherited a strong propensity to be violent to each other, notably more so than most other mammals. This was particularly true at the dawn of humankind, but has reduced enormously with time in line with our sociopolitical organisation. Rabbits, it seems, have always been pretty harmless.

Bullying is one form of interpersonal violence. Is it true that those who bully others are more likely to be battling their own demons? McMillan *et al*⁷ have explored the link between bullying behaviour and mental ill-health over the previous year. In a large nationally representative survey of almost 35 000 Americans, 239 (slightly more men than women) reported engaging in bullying over that time-frame. These individuals had greater rates of mental ill-health: mood, anxiety, substance misuse, and personality disorders were common among them, and a particularly strong association was found with PTSD. The data support the broader cultural idea, however the actual numbers admitting to this behaviour look rather implausibly low – workplace bullying is typically reported in 9–40% of samples. The single research question (‘Did you push people around or try to make them afraid of you?’) might have evoked responses relating to a specific physical form of bullying, and omitted less overt forms such as gossiping and social exclusion.

Hennig *et al*⁸ looked at bullying in childhood, again taking a large ($N = 8247$) representative sample, this time of British parents and children. The authors were particularly interested in children with attention-deficit hyperactivity disorder (ADHD), and whether bullying might account for the subsequent development of psychotic experiences that is seen about twice as commonly in this cohort. Children with ADHD are more likely both to be bullied and to bully others: studies have shown that contributing factors can include being less liked and more rejected by peers and teachers. *General* (non-bullying) early-life traumas were found to be significantly associated with both ADHD and psychotic experiences, but there was no evidence of mediation between the two. However, bullying – whether as instigator or victim – was found to be a significant mediator of subsequent psychotic phenomena, accounting for almost half of the effect. The authors propose that screening for bullying should form a core part of ADHD work, and that interventions have the potential to reduce the development of psychotic experiences.

Different psychosocial stressors and varying presentation to, and recognition by, professionals are all accepted moderators of psychiatric gender differences. What about underlying biology? It’s a surprisingly poorly understood area, and much focus has been on broad hormonal differences, such as occur perinatally. Orexins are hypothalamus-produced neuropeptides that help regulate various neuroendocrine and behavioural responses, and sex differences in their synthesis have been reported. They are affected by stress conditions such as mood disorders, and Grafe and colleagues⁹ examined differences in their expression in male and female rats subjected to repeated restraint. Further, using Designer Receptors Exclusively Activated by Designer Drugs (DREADDs) they were able to inhibit orexin activation to determine whether any stress-related changes were altered. Female rats demonstrated greater impaired habituation and decreased

cognitive flexibility in the face of repeated stress, and this was accompanied by increased orexin expression and activation (mediated by glucocorticoid receptors on the prepro-orexin promotor). DREADD-induced inhibition of orexins prevented heightened hypothalamic–pituitary–adrenal responsivity and reduced stress-induced cognitive impairments. The findings show that orexins may have key roles in adaptive responses and cognitive flexibility to stress, and that they appear to have critical gender differences.

Finally, we’ve just spent a few weeks watching out for a friendly man with a big white beard and red pyjama suit gently singing *ho-ho-ho*. It’s been argued that our modern representation of him owes much to a large soft-drinks company (which may or may not be aware of the aforementioned CP-AMPA data on junk food being addictive), but are there deeper Jungian aspects to his facial hair? In ‘Beards and the big city’, Dixon and colleagues¹⁰ note the seeming paradox of men commonly expending much energy shaving off the prominent secondary sexual trait of androgen-dependent facial hair. Using a large cross-cultural sample, they looked at variation across city- and nation-level variation, and found that women’s preferences for beards were strongest in countries with lower average incomes, and beards were more common in cities with larger populations. The authors propose that crowded conditions and situations of higher anonymity may promote amplified signals of masculinity. Meanwhile, moving seamlessly from Jung to Freud, Varella Valentova *et al*¹¹ found that Czech women preferred a similar degree of partner-beardedness to that of their fathers during their childhood. One of the Kaleidoscope authors lives close to the Shoreditch–Hoxton East London epicentre of beardiness, and will instigate some local field trials.

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