

Kaleidoscope

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Ireland's recent repeal of Constitutional prohibition of abortion attracted a lot of interest and debate, including the concern about the impact of abortion on women's mental health. This has driven legislation in some US States, using the argument that some studies have shown greater rates of depression in women who have had terminations of pregnancy. However, such work was often based on self-report data, with inevitable biases including recall and social desirability. *BJPsych* readers will not confuse correlation with causality, but can the confounders be unpicked? Steinberg *et al*¹ explored a Danish population registry covering a 15-year period, encompassing almost 400 000 women; over 30 000 of whom had a first-trimester abortion, and over 85 000 had a first childbirth. Antidepressant prescription was taken as a proxy marker for depression or anxiety, and incident rate ratios were thus calculated for several subpopulations. Women who had abortions were more likely to use antidepressants, but it was the subanalysis and correction for confounders that were critical; they were at an equal higher risk of medication use in the year before the abortion as the year after, and this waned with time, going against the 'lagged effect' hypothesis that abortion causes a long-term negative impact. The strongest risk factors for antidepressant use were past psychiatric contact and having previously been on an anti-anxiety or antipsychotic medication. The additional use of antidepressant medication was not evidently because of having had an abortion, but to differences in risk factors for depression. The authors suggest that mental health problems may have an impact on rates of unintended pregnancy rather than the other way around, and conclude that 'policies based on the notion that abortion harms women's mental health may be misinformed'.

Problems with trust can underpin some of the difficulties experienced by individuals with borderline personality disorder (BPD); how might this be modelled? Fineberg *et al*² utilised the social valuation task in women with BPD who interacted with a trial partner, whom they met briefly before the task. The non-social aspect involved making a binary choice between a green and blue box, which had varying point values attributed to them; the social cue aspect arose from receiving advice from the trial partner ('confederate'), namely guidance that one colour would be more likely to be 'correct'/high value. Participants were told at the trial outset that the confederate's advice might be helpful or might serve their own purpose. This necessitated learning non-social and social cue reward probability, both of which varied across the experiment. Compared with trial controls, those with BPD focused more and assigned greater weight to social (over non-social) cues, including talking much more about the confederate at debriefing. Interestingly, and against hypothesis, negative social experience (i.e. incorrect advice from the confederate) did not have as strong or enduring an impact on this cohort as positive social experiences from correct advice; in line with this, women with BPD showed less distress than controls in reaction to confederate deception, which may reflect underlying assumptions of others as being unreliable. However, they showed considerably blunted learning to reward volatility compared with the control participants; the paper proposes that those with BPD may presume high volatility in all environments, and thus are unsurprised and do not update learning when it happens. Combining these outcomes, it may be a positively adaptive strategy in those sensitive to volatility to pay close attention

to cues yet not to update learning outcomes. The authors suggest these findings could be used to create computational models of belief updating in BPD, with the ultimate aim of guiding more specific psychological interventions.

Interfacing superstition, anecdote and science. We recently wrote on conspiracy theories, so it may be a good time to visit attitudes to vaccinations. A common reason for parents withholding vaccines from their children is a concern about side-effects. It matters: measles is on the rise, and children are dying. Louise Smith and colleagues prospectively evaluated³ parental expectations of side-effects following their child's inoculation with the influenza vaccine, and their intent to re-vaccinate the following year. Parental expectations of problems were strongly associated with subsequent reports of problems, and, concerningly, lower intent to re-vaccinate the following year. The authors state 'parental expectation...is self-fulfilling' and argue for better public health communication to reassure about the self-limiting and mild nature of most side-effects and decrease unrealistic expectations. One of the Kaleidoscope authors suffers very real and not imagined managerial side-effects of reduced Commissioning for Quality and Innovation funding from inadequate staff flu-vaccine take-up; he has a plan for the next iteration...

Spinning the scepticism the other way around, an inverse association between groundwater lithium levels and rates of mental ill health have been noted, leading some to call (rather weakly, in fairness) for its introduction into the reservoirs, like fluoride in some jurisdictions, and thiamine in your cornflakes. Parker *et al*⁴ remind us that there are numerous potential confounders to any such association, not least local healthcare resources and demographics. They test this combining US geological survey data of local lithium levels with such sociodemographic factors: areas with high lithium concentration did indeed have lower prevalences of many mental illnesses, but they also had variations in the number of doctors and clinics, and we are unaware of any argument about groundwater lithium causally leading to medic migration. The authors note the biological implausibility in terms of any levels in drinking water being orders of magnitude below therapeutic doses, although this may anticipate a homeopathic effect – ironically a favoured intervention for many anti-vaxxers.

Deep and deepening political divisions seem the rage; Chen & Rohla⁵ look at how their occurrence in families leads to shortened duration of attendance at Thanksgiving dinner (a proxy for family discord). According to the authors, partisan politics affects parents' attitudes to their children's dating and marriage choices, and political allegiance dominate relationship choices more than personality and physical attributes. Thanksgiving occurs just weeks after presidential elections in the USA and in 2016, as we all know, political divisions were perhaps more pronounced (and election results harder to call) than previous years. By merging mobile-phone temporal and geospatial data with precinct-level presidential voting records, they could infer patterns of travel and time spent in locations on Thanksgiving in 2015 (before) compared with 2016 (after) the presidential election. They controlled analyses for home-destination pairing and advertising influence (which they report is significant in influencing cross-partisan animosity in US elections) by matching people just either side of advertising market geographical boundaries. They identified 6 million home locations, paired with voting shares and census demographics, and look for changes in location (reported by the phone) on Thanksgiving Day 2015, then 2016. They then measured the political mismatch (Republican vs. Democrat) of each pair (traveller and host) and use these as independent variables in a regression with the dependent variable being the duration spent together. People

visiting hosts with different political allegiances spent between 30 and 50 fewer minutes together in 2016 (which appears dependent on distance travelled – it is easier to go home if you live in neighbouring ZIP codes) and this effect is increased when home-location, partisan advertising ‘load’ is added. Given 77% of the US population have smartphones, the authors estimate that 33.9 million person-hours of cross-partisan political discussion (over Thanksgiving) were lost because of these effects, concluding that political distance – as well as advertising – influence family dynamics. Perhaps, a parallel UK analysis could be performed for Brexit and Christmas turkey.

We think of the classic onset of psychosis occurring around 21 years, perhaps a little later and with a second perimenopausal peak in women, but very late onset (>60 years) is not as rare as one might think. Clinically, female gender, sensory impairment and being a migrant increase risk, although interestingly genetic risk factors do not seem to be at play in this population. Problematically, there has not been a randomised controlled medication trial in this cohort – at least not until now. Howard *et al* report⁶ on a double-blind two-stage randomised controlled trial of just over 100 such participants recruited from 25 older adults’ services across the UK, randomised to one of three groups: amisulpride 100 mg/day in both 12-week stages; amisulpride in the first stage, then placebo; and placebo followed by amisulpride in the second stage. The particular antipsychotic was chosen as it is typically less sedating than some other drugs. In total, 59 participants completed the entire 24 weeks, and although adherence was less than optimal (although this models real-world practice), the benefits for medication were clear. The medication was well tolerated – extrapyramidal symptoms were modest – and best gains were seen with prolonged treatment. Very late-onset psychoses are the third biggest clinical cohort seen by older persons’ services – it is good to have these data to support clinical decision-making.

To another ‘non-rare’ psychosis, that seen in major depressive disorders. A recent *BJPsych* editorial by Heslin & Young⁷ noted how psychotic major depression has the same point prevalence as schizophrenia, and writing in the *American Journal of Psychiatry*, Nelson *et al*⁸ meta-analyse its longitudinal trajectory. Across over 2000 individuals, about a quarter of whom had psychotic depression, the data support the notion that psychotic depression ‘runs true to form’, that is to say those who have it tended to have it in previous episodes, and were far more likely to have it in future ones. It is also clinically interesting that the psychotic content – i.e. the specifics of any hallucinatory and/or delusionary experiences – is frequently similar in each distinct episode. The findings remained after removing potential confounders and the authors argue psychotic and non-psychotic major depressive disorder represent distinct clinical conditions. We are reminded how the psychotic variant has been shown to be less responsive to antidepressants – although the question of optimal treatment remains unresolved – and has twice the long-term mortality of non-psychotic depressions.

Finally, interest in the ‘marshmallow test’ as a marker of social cognition was recently revived by a study that received significant newspaper coverage. The concept is that a child’s ability to delay gratification can be measured by offering them one marshmallow now versus the promise of more if they can wait for a period of time. Children who cannot resist (gulping down the single marshmallow) were thought to have poorer long-term outcomes in regard to future cognitive, social and brain development.⁹ But Watts *et al*,¹⁰ in the recent work garnering media attention, argue that the strong bivariate correlations originally reported were in a very select, small group (children of people at Stanford University) with no adjustment for potential confounders. In their study of

over 500 children of mothers who did not attend university, they found that each extra minute delayed gratification in the marshmallow task (at age 4 years) conferred an increase in school achievement of 1/10th of a standard deviation at grade 1 (aged 6–7 years). But... when adjustments and controls were added to the modelling, the effect disappeared.

Similarly, one of the most iconic social psychology experiments of all time – Philip Zimbardo’s 1971 Stanford Prison Experiment – has been re-examined by scientist and journalist Ben Blum¹¹ (whose cousin, Alex Blum, used Zimbardo’s expert testimony on human behaviour and conformity to exonerate himself for involvement in an armed robbery in 2006). Blum explains that the attention received by the experiment was in part a coincidence of timing and publication – the Attica and San Quentin prison riots occurred shortly after the experiment was concluded and the first publicity of the results was in the *New York Times*. Re-examining recorded media from the pre-experiment briefings revealed that instructions given to the guard participants was intended to influence their behaviours; the callous and traumatising behaviour directed at the prisoner participants that ‘emerged’ in the guard participants was more likely a function of coaching than (as was claimed) emerging as a natural consequence of innate human nature interacting with the experimental conditions. Blum also re-examined claims from two of the prisoner participants: one who had a very visible ‘breakdown’, the other who started a hunger strike. The former has since claimed it was an exercise in acting to concord with his assumed role in the experiment, and the latter to ‘scare’ the experimenters into releasing them for fear of medical liability (when he was denied his request to exit from the experiment). All a good excuse to sign-off with some Johnny Cash: ‘San Quentin, I hate every inch of you, you’ve cut me and you’ve scarred me through and through.’

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