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Kaleidoscope

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Kaleidoscope previously noted[1] how perhaps three in four individuals on antidepressants might not have depression (although they clearly have problems), and conversely three in four with depression are getting no help at all. What is preventing those who need it accessing care? Chekroud *et al* evaluated data from almost 400 000 individuals from the annual US National Survey on Drug Use and Health (recorded between 2008 and 2014), over 20 000 of whom had been diagnosed with depression in the year before their survey.[2] About a third who actually got as far as receiving such a diagnosis were *still* not accessing any treatment – so it is not just failure to get as far as the doctor's office that is causing problems. Machine learning was used to develop a model that identified this non-attending group from the 2008–2013 samples, and this was independently tested on the 2014 cohort. It accurately identified 72% who did not start treatment, correctly predicting 10 of the 15 reasons they gave as barriers to care. Sadly, in this US sample, the most common reason was not being able to afford treatment costs; not knowing where to access care and fear of stigmatisation followed, which are likely to be more universal. The personal and societal loss from untreated depression is enormous; this fascinating piece shows it is possible to anticipate those who will not engage after being given a diagnosis of depression. The next step is developing interventions to try outreach to them, and, of course, finding those with depression who did not even make it that far.

Another recent Kaleidoscope[3] reported on negative outcomes in manualised family therapy for adolescents who had self-harmed. Resonating with Chekroud *et al*'s article,[2] it is estimated that up to three-quarters of this group do not engage with recommended care. Writing in *JAMA Psychiatry*, McCauley *et al* report some more positive findings in this cohort of vulnerable younger people.[4] They randomised 173 12- to 18-year olds who had at least three past episodes of self-harm to receive either dialectical behavioural therapy or individual and group supportive therapy, which was delivered over a 6-month period. Significant post-treatment advantages were found for dialectical behavioural therapy in terms of the numbers of suicide attempts and non-suicidal self-injuries, although this decreased with time and was lost by the end of the 1-year follow-up. The data are heartening, but investigation is required into how gains might be maintained.

The burden of bereavement is a deep one for us all, seldom more so than for children who have lost a parent. Most of us will know someone who has felt a lifetime's negative impact from such early life loss, and some of us will acutely and personally know that pain. Increased depressive symptoms, a loss of self-confidence, problems with interpersonal relationships and educational underachievement have all been linked to such bereavement, but there has been a lack of long-term follow-up in a representative cohort. Pham *et al* have now done this tracking, over 7 years, 216 young people who lost a parent to suicide, accident or sudden natural death and comparing them with 172 non-bereaved youths.[5] Those who experienced bereavement had greater rates of depression and post-traumatic stress disorder at all time points, regardless of how their parent had died. The peak occurrence of depression was in the first 2 years after their parent's death, and it was most notable in those who had experienced this loss aged 12 or younger. The findings support a tripartite model of pathology: there are greater rates of pre-existing morbidities and adversities in some such families that might contribute both to the early death and also have had an impact on the child before that event occurred; parental death often robs families of practical resources and resilience; and these factors can interplay with the loss to increase maladaptive coping. Overall the paper confirms and clarifies from a time point of view what we might have suspected – the profound impact of parental death on children – and give us further impetus to try to identify those suffering most.

Few topics are as contentious as the duration individuals with psychosis should remain on medication. There are very understandable personal reasons why people might wish to ultimately come off treatment, we have the oft-considerable burden of side-effects, and, of course, there is the hotly debated issue of iatrogenic harms from them. It is an area that always needs the best-available evidence to help inform clinical consultations. National guidelines typically recommend avoiding 'unnecessary' long-term prescribing, with algorithms usually looking at up to 5 years' stabilisation. Interestingly this is not an evidence-based recommendation, although one can imagine how it arose in expert-led consensus/debate about benefit and harm ratios over time. Tiihonen and colleagues report on a 20-year follow-up study looking at antipsychotic medication discontinuation in a large Finnish national registry that encompassed almost 9000 individuals with psychosis.[6] The results go against the grain of the guidelines: the lowest risk of readmission to hospital was seen in those who received medication continuously. Furthermore, those who did not use, or rapidly discontinued, antipsychotics had a 174–214% higher risk of death during the follow-up period. We rightly think of side-effects and harms from drug use; we need to also be cognisant of the harms that may come from their omission. There is a lot to unpack in this, but these data state that the risk of relapse does not decrease with time and there is no 'safe point' to stop treatment.

Even if individuals stay on antipsychotics they do not work optimally for all; this is patently also true for our go-to drug for refractory states – clozapine – which does not adequately help between a third and a half of those who take it. What next? The aforementioned guidelines offer a menu of options, but little to delineate them beyond personal choice, and it is an evidence-scare region. Morrison *et al*'s impressive work to enhance our understanding of this clinically common and commonly clinically challenging group is therefore to be welcomed.[7] They undertook a multisite pragmatic, parallel-group, assessor-masked randomised controlled trial of almost 500 individuals refractory to treatment and unable to tolerate clozapine. Participants were allocated to either have their care augmented with cognitive–behavioural therapy (CBT), or to continue with treatment as usual. Disappointingly there were no differences between the groups at the end of the 21-month follow-up period, although the CBT group showed some statistically, but not clinically, significant gains by the end of the intervention. It is important that negative trial data like these are published, even if the findings are disheartening; the authors note that although the data do not support universal roll-out in this cohort, it does not mean CBT should not be considered on an individual basis. Both this and the work on long-term antipsychotics highlight the wisdom and art of clinical practice that are needed for discussions and decision-making with the single person in front of you asking for guidance.

'Sunk costs': the amount of time you have spent on the phone listening to Greensleeves while waiting for the operator to pick up. Should you hang-up and try later? But you have already been on so long, surely you must be next in line! Logically one should ignore sunk costs, as they are irrecoverable, and only use prospective

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information about predicted future costs/rewards. However, there is evidence that is not how animals, including humans, behave. Sensitivity to sunk costs leads to persistence on the same activity because the previous activity's cost was so high they cannot abandon the behaviour – colloquially, 'This has cost me dearly, but if I persist further it should work'. Writing in *Science*, Sweis *et al* devised two comparable foraging tasks across rodents and humans: a maze-based restaurant waiting problem (for mice and rats) and a web-surfing scenario (for humans).[8] In these tasks, time spent in different 'zones' was measured – for rodents, they enter a restaurant's 'offer zone' and the food reward (chocolate, grape or banana) was indicated along with the expected wait time (conveyed via a tone signal). The rodent could then move to the wait zone and 'sit it out' to collect the food, or during the wait, move on to the next restaurant. In humans, an 'offer' of a video to download (landscapes, kittens, dancing or accidents) was given – and the expected wait time indicated by the length of a download bar; similarly, the participant moved to the wait zone, and either waited for the download, or moved on during the download. In both tasks, the 'cost' is time spent – an amount in the offer zone deliberating and a variable amount in the wait zone for the reward. As time on the whole task is limited, the dilemma is: does one wait for the reward, or abandon and move on to the next video/food offer? Time spent in the wait zone is the sunk cost, and the future reward measure is the remaining time to reward delivery in the wait phase/zone. They found that the time spent deliberating in the offer zone was unrelated to the time-to-quit in the wait zone. By comparing quit versus non-quit behaviours, the authors found that the longer the participants spent in the wait zone, the more likely they were to wait for the reward rather than quit. Once the decision has been made to pursue reward, the sunk cost is ignored and the participant sits it out to get the reward. Remarkably, this was consistent across mice, rats and humans, suggesting evolutionary preservation of the sunk cost fallacy. Goddamit Greensleeves, you have us trapped.

Finally, who tells more lies: men or women? Oh, we *so* knew you would say that. What does science and not gossip – or your frankly prejudicial views of the opposite gender – have to say about this? Valerio Capraro meta-analysed almost 9000 observations of the 'sender–receiver' game, collected across 65 tests by 14 research groups.[9] There are multiple variations on the theme of this game, but the basic principle is always the same: there are two 'players', and the experimenter gives information to the first participant who passes it – or a lie – to the second; the second player has to guess what the original information was, and they each get different rewards depending on the various outcomes (differentially incentivising lying and altruistic behaviour). Capraro distinguished three major types of lie: 'black lies' that benefit the teller at the cost of a victim; 'altruistic white lies' that benefit another person at the cost of the liar; and 'Pareto white lies' that benefit both the liar and someone else (there is, in the jargon of the field, a fourth category – 'spiteful lies' that harm both the liar and the other person). Just to clarify for the men reading this, the phrase 'I'm leaving now and will be back in 30 minutes' is scientifically a black lie – it does *not* benefit the recipient to hear that and has no known altruistic component. So, place your bets, what was the outcome? Well, men are significantly more likely than women to tell black lies…oh, you knew that already did you? Men were also more likely to tell altruistic white lies that also benefit another, although we are not sure that is enough to get them out of jail for the first finding. And the results were inconclusive for so-called Pareto white lies. The social science explanation is that men are fundamentally more selfish than women, although also more concerned about social efficiency; women are more concerned about equitable distribution of pay-offs. In lay-language it appears to confirm women being sugar and spice and all things nice; men just seem to be rats and snails and puppy dogs' tails. We have been trying to come up with a more positive spin on the findings, but we can't, and we are not sure you would not believe us even if we did…

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