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Kaleidoscope

Derek K. Tracy, Dawn N. Albertson, Lisa Lloyd, Sukhwinder S. Shergill

Violent offenders with personality disorders are too often considered 'untreatable' and indeed seldom offered clinical services. This cohort, most frequently men, is an interesting addition and counterpoint to the complex arguments about institutional misogynistic medicalisation of trauma in, most frequently, women with personality disorders. It's a group associated with serious and often repeated criminal behaviour, high rates of recidivism and an estimated annual incarceration cost of $80 billion in the USA alone. More standardised cognitive–behavioural approaches to minimising aggressive behaviour have shown only modest gains, and concerns have been raised about the utility of interventions where they are mandated. Schema therapy has been shown to have some effectiveness in helping those with so-called 'cluster C' personality disorders through changing engrained cognitive and emotional states, particularly in motivating and engaging individuals, lowering risks and building protective factors. Berstein et al[1] report on a randomised controlled trial of 3 years of schema psychotherapy for rehabilitating 133 violent offenders with personality disorders in eight high-security forensic hospitals in The Netherlands. The sample included antisocial, narcissistic, paranoid and borderline personality disorders. Schema therapy was superior to treatment as usual in terms of rehabilitation (namely attaining supervised and then unsupervised leave) and in both reducing and having faster improvement of personality disorder symptoms. Three years of therapy is a considerable therapeutic input, but these data show that it is effective in helping those too often considered 'unhelpable' and also potentially reduces various vicarious and surrounding harms to victims and society that can be otherwise inflicted.

We all feel lonely at times. The lenses of attachment theory and evolution agree that humans are wired for social connection; humans feel safest in groups and experience greater threat and stress when isolated. It is no wonder that many health and psychological risks have been associated with the experience and long-term effects of loneliness. More specifically, work has shown that prolonged loneliness during childhood can have lasting effects through adolescence into adulthood. Xerxa et al[2] prospectively assessed this through large samples and repeated assessments of loneliness across childhood and adolescence over a 22-year period. They concluded that childhood loneliness is a major risk factor for both psychological disturbance and poor health outcomes in adults. Given the subjective internal nature of the experience of loneliness, the study was unique in using a multi-informant approach that included parents and teachers. They were also able to report any behavioural changes, to address the potential for bias when relying on self-report data alone (more of that in the next piece). Both self- and parent-loneliness ratings of childhood were associated with adult self-reported anxiety and depression outcomes, with higher associations from the former. These remained significant when adjusted for both childhood adversities and psychiatric comorbidities. Interestingly, however, there was no evidence for an association of childhood loneliness with adult substance use disorders. Notably, childhood loneliness was linked more with adult psychiatric symptoms than with a particular diagnostic status. This study also highlighted how symptoms might differ depending on age and social circumstances, as well as the need to be mindful of age and individuals' capacity to access and verbalise such thoughts. Challenging our bias that older adults are the loneliest, UK data have shown that it is actually the 16- to 24-yearold age group. Here, depression peaked at 12–16 years, aligning with times when social acceptance and contact are high on an adolescence agenda. How to minimise this? It is not only healthcare professionals intervening early; loneliness must be on the political agenda. It costs the economy approximately £10k per person per year from well-being and productivity losses – as harmful as smoking 15 cigarettes a day and increasing your overall risk of death by 26%. Covid highlighted the importance of social contact; the cost-of-living crisis will only underscore this further. Encourage researching evidence-based interventions for people suffering from or at risk of experiencing loneliness.

The Kaleidoscope authors who are parents have some scepticism about the accuracy of young people's self-reports of alcohol and drug consumption. The issue is important, beyond our domestic concerns – most science on the topic is based on those self-reports, so how accurate are they? Steinhoff et al[3] compared them with objective hair toxicology in just over a thousand young people (mean age 20 years, 50% female). The analysis looked for cannabinoids, ketamine, stimulants, opioids and their relevant metabolites, as well as exploring sociodemographic and psychiatric characteristics. The findings confirmed our anxieties: there was considerable overall underreporting – by an average of 50% – that the objective testing picked up. There were variations between drugs; for example, the prevalence of cocaine exposure was 1.4 times that self-reported, whereas for ketamine the figure was 2.6. What is particularly interesting here is that participants knew they were also having the toxicological testing, obviating social desirability biases in reporting; hence, one imagines they were less motivated to frankly lie. The authors suggest that there might be a genuine yet clearly important recall bias as participants tried to remember longer-term drug consumption. Moderators included greater rates of delinquency and psychopathology being associated with underreporting, and self-reported infrequent use being associated with overreporting. No differences were noted across socioeconomic or educational backgrounds. Self-reports continue to offer many advantages in research, not least in understanding motivational, contextual, and timing and/or frequency (rather than cumulative total) data, not to mention the general ease of sampling. Rather than ignore that method, sampled objective detection ratios are proposed as a future mechanism to help recalibrate and adjust the self-reports.

There has been a pleasing growth in patient and public involvement (PPI) in research, though sometimes there is a lingering sense that we might not be doing it as well as we might like. Writing in *Lancet Psychiatry*, Richmond et al,[4] who as a group have various lived experiences of mental illness, reflect on what makes a good, constructive experience. This clearly matters. Many with lived experience will have aversive experiences of the services they are now assisting with evaluating, power gradients can be re-enacted, and there might be complexities in navigating the dual 'identities' of patient and researcher, with risks of feeling exploited. This toll of involvement can be distressing and indeed increase the risk of illness relapse. Six factors were identified that not only improved the research but also assisted those with lived experience who had contributed: reframing painful memories, recognising value, practising reciprocity, bridging gaps, countering stigma and challenging established narratives. The authors present a compelling narrative of the 'emotional labour' of PPI engagement that, perhaps, those of us who undertake research too infrequently contemplate in adequate detail. Notable here are the questions of what and how much of such intimate and personal information does one share. However, the positives of PPI, not least 'restorying' to enable

hearing, healing and moving on, are nicely drawn out. Doing 'with' rather than 'to' people is not enough if we are not doing it well, with obvious dangers of tokenism without appropriate consideration: the authors charge that actions as well as values are needed.

Our favourite lecture in medical school was when we were taught that one weird trick to help weight loss that we can't share with the public – it's pretty amazing, right? Well, the internet is full of clickbait advertisements promising that their 'one weird trick' will give you the results you want for your body, hair or health, but rarely do we encounter evidence for a simple, free and quick solution to what ails us within an academic journal. Recently, *Cell Reports Medicine* gave us just that in a randomised controlled trial from Stanford University.[5] Taking a cue from many ancient practices – as well as modern studies – that connect breathing patterns to well-being, the authors looked at the impact of different approaches to controlled breathwork and mindfulness meditation on physiological and psychological measures. A total of 111 participants completed the study; they were divided into four groups and asked to do their assigned intervention for 5 min a day for 30 days. Passive awareness of breathing was the focus of a mindfulness meditation group, whereas active control of breath took three separate forms, each with different inhale–exhale ratios: 'cyclic sighing' involved a 1 s inhale and another short 0.25 s inhalation, followed by a 2 s exhalation; 'box breathing' involved an inhale, hold, exhale, hold pattern, each with a 1 s duration; and 'cyclic hyperventilation' with retention involved doing 30 repetitions of a 2 s inhale, then a 1 s exhale, with a 15 s hold between repetition groups. Pre- and post-tests conducted before and after the 30 days included the State-Trait Anxiety Inventory and PROMIS sleep-related daytime disturbance scores. Daily measurements were collected before and after the breathing exercise. They included state anxiety, positive and negative affect, and physiological measurements taken from a wearable device including resting heart rate, respiration rate, heart rate variability, sleep efficiency, hours of sleep and sleep score.

Each of the four breathing conditions generated a decrease in state anxiety and negative affect, while increasing positive affect after the 5 min exercise. When comparing passive observation versus all active breathwork groups across the study duration, the active groups showed a significant gain in positive affect that increased as the study went on. Looking within the active group, only cyclic sighing was significantly better than mindfulness meditation on increasing positive affect, and it was the only one that had a greater impact with more practice, indicating some benefit to the emphasis on exhalation. The effect was echoed when looking at the physiological measures. No differences were noted across the groups, with the exception of respiratory rates. In this case, breathwork was significantly better at reducing respiratory rates than mindfulness, an effect that was entirely attributed to the cyclic sighing group. Of course, there is much more to explore from a scientific perspective to truly understand the mind–brain underpinnings of these effects. However, these data demonstrate fast-acting benefits for anxiety, mood and heart rate via a simple, safe and free intervention that can be done at home. The accessibility of the protocol is inspiring, and the stacked gain versus risk ratio is a rarity. Who among us couldn't benefit?

Finally, what is 'disruptive' science, how might we measure it and does its frequency matter? There have been many debates on interpreting publishing data in a complex and rapidly moving field, and one undoubtedly manipulated at times by unscrupulous academics and journals. There are concerns about 'unearned' authorship, and a few years ago a commentary in *Nature* noted that some hyper-prolific authors were publishing a new paper every 5 days.[6] Conversely, another more recent piece in *Nature* claims that truly innovative 'disruptive' science has declined, and that there is no clear explanation for this.[7] The authors analysed 45 million papers across six decades, so no complaints about their sample size here. As well as exploring the common but perhaps limited marker of linked patents, they used a novel 'consolidating/disruptive index' that looks at how both patents and papers change networks of citations. The idea here is that if a paper is truly disruptive, subsequent pieces that cite it will be less likely to simultaneously cite its forebears. Their findings slow a clear, consistent decline over time; we are just producing less research these days that is liable to push science and technology into especially novel arenas. Lots of hypotheses abound in wider discussions on this topic, from it taking longer to attain adequate levels of expertise (a so-called 'knowledge burden') to the low-hanging fruit having already been exploited (take that, theory of general relativity). However, the data here don't support these ideas, and it was unrelated to the quality of research or field-specific issues. Interestingly, although papers cite ever more work, there has been some narrowing in the types of prior publication that they cite, as well as growing self-citation. The authors share some optimism: there is no clear end of the 'endless frontier' of science, disruptive papers continue to emerge, and there may be policy levers that can be used to target universities and funders to aid the production of the best novel work. They reinforce the need to emphasise quality over quantity (take note, funders) and encourage up to year-long sabbaticals to help refresh. A nice point for us to check-out for now, at least until next month.

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