

without (OR = 2.18, 95% CI = 1.63–2.90,  $P < .00001$ ). Increased mortality risk was found on subgroup analysis for participants with pre-existing schizophrenia (OR = 2.55, 95% CI = 1.38–4.71,  $P = .003$ ) and dementia (OR = 3.83, 95% CI = 2.42–6.06,  $P < .00001$ ). There was no statistically significant difference in the severity of illness when comparing the two groups. There was a statistically significant increase in the number of participants with comorbid diabetes and chronic lung disease in those with a pre-existing mental health or neurocognitive disorder compared to those without.

**Conclusion.** The results show that people over 18 years with a pre-existing mental health or neurocognitive disorder have an increased risk of mortality from COVID-19 and are more likely to have comorbid diabetes and chronic lung disease. These results highlight the need for better physical health monitoring and management for this group of people and better integration of mental and physical health services, as well as adding to the evidence that they should be prioritised in the ongoing COVID-19 vaccination schedules worldwide.

### A Qualitative Study Exploring the Role of Hindsight Bias in the Process of Reviewing Clinical Practice Prior to Adverse Incidents

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**Aims.** To explore the effect of hindsight bias on retrospective reviews of clinical decision making prior to adverse incidents to inform future approaches to incident investigations.

**Methods.** We have undertaken focus groups with doctors of varying grades across the North West of England and North Wales. A vignette based on a real-life case from the publicly available NHS England Homicide Independent Investigation report database was presented to each group in one of three versions which differed in terms of the ending of the vignettes (i.e. suicide, homicide, no adverse incident). Using a semi-structured interview approach, the group participants were encouraged by the facilitators to reflect on issues relating to risk and risk management. All groups were provided with the same vignette which initially made no reference to the outcome and asked to comment on matters of risk and risk management. Halfway through the discussion, one of the three outcomes was disclosed, and further group discussion was held. The recorded interviews were transcribed and thematic analysis was undertaken using an adapted Framework Method.

**Results.** Preliminary results ( $n = 10$ ) indicate that participants identified the potential for significant harm, particularly to others, and identified evidence of key psychopathological and historical correlates to support assertive management of risk and admission to hospital.

Whilst knowledge of the outcome did not lead to participants changing their favoured management plans, it did alter how they

appraised the case and led to participants constructing “narrative” explanations for the outcome given. The level of conviction participants held for their management plan reduced when their expectations about the outcome were confounded.

Participants presented with the suicide outcome vignette described their difficulties appraising risk to others and their over-sensitivity to that risk. Participants faced with the ‘no adverse outcome’ vignette perceived the original management plan far more favourably in hindsight. The groups that were presented with the homicide outcome vignette initially focused on both risks to self and others as well as the perceived need for further information. Following knowledge of the outcome, there was a tendency to highlight parts of the letter pertaining to risk to others which they previously had not given as much attention.

**Conclusion.** The initial analysis of our data confirms the findings from previous studies that hindsight colours the appraisal of adverse events. However, this study is novel in that it describes the nature of the thought processes underpinning the influence of hindsight on appraisals of risk.

### Microbiome Modulators and Mood Disorders: Using a Multi-Strain Probiotic - Bio-Kult® Advanced - in Patients With Low Mood

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**Aims.** The aim of this proof-of-concept study was to understand the effect of daily intake of a 14-strain probiotic on mood, reward learning and emotional and cognitive processing in adults with low mood in the absence of prescribed medication. Salivary cortisol was measured as a marker for physiological stress.

**Methods.** In this parallel-group double-blind, placebo-controlled trial, 80 healthy adults with self-identified low mood were randomised to receive either the 14-strain probiotic or placebo for a duration of 4 weeks. Data were collected from participants at baseline (week 0) and post-intervention (week 4).

**Results.** Probiotic intake significantly reduced depression scores (by 50%) compared to baseline, as measured by the Patient Health Questionnaire-9 (PHQ-9) scale ( $p < 0.05$ ). Analysis of individual items in the PHQ-9 revealed that participants taking probiotics reported improved concentration relative to baseline (+ 51%,  $p < 0.05$ ) and felt less tired compared to placebo (–21%,  $p < 0.01$ ).

Regarding emotional processing, the probiotic group was more accurate at recognising facial expressions compared to those receiving placebo (facial emotion recognition test, +12%,  $p < 0.05$ ). Furthermore, the probiotic group performed less well at the reward learning task relative to the placebo group (probabilistic instrumental learning task,  $p < 0.05$ ) and was less vigilant to emotional cues compared neutral cues (dot-probe unmasked test, –8%,  $P < 0.05$ ). The probiotic group also showed increased susceptibility to emotional interference during a cognitive learning task, relative to placebo (auditory visual learning task, –18%  $p < 0.05$ ).

The study also revealed a downward trend in salivary cortisol in the probiotic group over 4 weeks.

Together, these results suggest that probiotics may work via a different psychological mechanism to that of conventional antidepressants. In other words, probiotics may work by reducing emotional salience across all emotions whereas conventional antidepressants