appropriate'), and 73.4% of respondents would be likely to accept subsequent preventative lifestyle interventions.
Conclusion: A high proportion of our respondents would be likely to seek out APOE-ε4 testing and counselling, and to subsequently accept lifestyle interventions and be involved in research. While our sample may not be completely representative of the general population, these initial results suggest that there is a need to develop guidelines for face-to-face genetic counselling for UK adults who choose to undergo APOE-ε4 testing.

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Toward Precision Mental Health: Explainable Machine Learning Models for Screening Anxiety and Depression in Medical Students Based on Lifestyle and Socio-Demographic Factors–Pakistan

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Aims: Anxiety and depression are prevalent among medical students worldwide, especially in low- and middle-income countries like Pakistan, where mental health stigma remains a significant challenge. This study aimed to develop an explainable machine learning-based screening tool for anxiety and depression using non-stigmatizing lifestyle and sociodemographic factors in academic settings. We hypothesized that explainable machine learning models can use non-stigmatizing lifestyle and sociodemographic factors to screen for anxiety and depression in medical students.
Methods: A cross-sectional survey was conducted among 1,630 undergraduate medical students in Islamabad, Pakistan. Participation was voluntary; informed consent was taken and confidentiality assured. The study protocol was reviewed and approved by the institutional ethics committee (Approval No. 00009 IHSA/P\D-2022). Data collection was guided by extensive stakeholder engagement involving students, faculty, and mental health professionals to ensure contextual relevance and acceptability. Sociodemographic variables (e.g., age, gender, year of study, socioeconomic indicators) and lifestyle factors (e.g., sleep patterns, physical activity, academic workload, and social factors) were collected. Anxiety and depression were assessed using validated self-report instruments (GAD-7 and PHQ-9).

Following data cleaning, imputation, and encoding, the dataset was split into training (80%) and testing (20%) subsets. Separate Random Forest classification models were developed for anxiety and depression due to their capacity to model complex, non-linear relationships. Hyperparameters were optimized using cross-validation. Model performance was evaluated using accuracy, sensitivity, specificity, and AUC-ROC. Explainability was enhanced through SHapley Additive exPlanations (SHAP), enabling both global and class-specific interpretation of predictors.
Results: The study reported that the prevalence of depression and anxiety was 57.8% and 46.4%, respectively. The anxiety model achieved 84.36% accuracy, while the depression model achieved 81% on the test dataset. SHAP analysis identified academic performance, sleep patterns, and physical activity as the strongest predictors of anxiety and depression, demonstrating non-linear and context-specific relationships. The anxiety model showed comparatively stronger performance, potentially reflecting differences in symptom structure and their associations with lifestyle variables.
Conclusion: We concluded that explainable machine learning models based on non-stigmatizing data can effectively support mental health screening among medical students. This approach offers a scalable, ethically transparent decision-support tool to inform targeted preventive interventions, such as sleep hygiene initiatives and workload management, advancing precision mental health in resource-constrained educational settings.

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Smart Handover: MHCAS's Digital Clinical Handover Tool

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Aims: The Mental Health Crisis Assessment Centre (MHCAS) at St Charles Hospital is a newly established acute psychiatric service within CNWL NHS Foundation Trust. Initial clinical and operational processes relied on parallel documents across multiple applications, highlighting the need for a safer and more efficient solution in a high-pressure clinical environment.

Aim 1 – Achieving Safe Digital Implementation: Successfully design and implement a safe, standardised digital handover tool using existing NHS IT infrastructure.

Aim 2 – Achieving Efficiency & Productivity: Demonstrate measurable improvements in clinical efficiency, workflow productivity, and multidisciplinary communication.

Aim 3 – Achieving Sustainability & Governance: Embed the digital handover tool into clinical governance processes to achieve sustainable "business as usual" practice.
Methods: The MHCAS Digital Handover Tool was developed using three applications within the NHS Microsoft 365 infrastructure: SharePoint Lists, Power Automate, and Power BI. Share Point Lists replaced three legacy handover documents with a single 'master' patient list serving as the central operational record. Power Automate automated routine administrative tasks. Power BI dashboards drew live data from the patient list to provide real-time visibility of operational activity, patient flow, and internal performance indicators, creating a unified digital handover and monitoring system.

Evaluation focused on system adoption, data quality, efficiency, and operational performance. Quantitative measures included weekly patient entries, number of active users, documentation update frequency, estimated administrative time savings, and referral-to-arrival times. These measures were continuously captured and visualised through live Power BI dashboards throughout the first quality improvement cycle. Qualitative feedback on staff experience, communication, and perceived value was collected at cycle completion.
Results: Six-week outcomes (15/12/2025–25/01/2026) included:

- Weekly patient entries increased from 15 to 61.
- 27 active multidisciplinary users.
- Documentation updates increased from 10.5 to 12.6 per patient per day.
- Data completeness >98%.
- All legacy handover documents retired within one week.
- 30% reduction in administrative workload.

- Median referral-to-arrival time reduced from 15 to 6 hours (60% reduction) despite increased referrals.
- 100% (9/9) staff reported improved communication and reduced administrative burden.

Conclusion: The MHCAS Digital Handover Tool demonstrates that meaningful digital transformation in acute mental health services can be safely achieved using existing NHS infrastructure and governance frameworks. The intervention delivered measurable efficiency gains, improved operational oversight, enhanced clinical safety, and improved staff experience. Live operational data supports continuous quality improvement, while early stakeholder engagement facilitated rapid adoption. The approach is scalable and replicable, with discussions underway regarding application across inpatient, crisis, and liaison services. Beyond providing a more efficient and modern alternative to the current handover tool, the project highlights the largely untapped potential of automation already available and applicable to NHS systems.

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Mental Health First Aid Training Amongst UK Medical Students: A Mixed-Methods Study

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Aims: Medical students experience higher rates of mental health problems compared with the wider student population. Stigma and fitness-to-practise concerns can deter help-seeking, with students often turning to peers. Mental Health First Aid (MHFA) is a psychoeducational programme developed for the general public, designed to support recognition of mental health difficulties and responses to people in distress. We present an innovative, co-constructed mixed-methods study exploring medical students' experiences of MHFA training,delivered as a student-selected component within a medical school curriculum. We aimed to explore the motivators, enablers and barriers to student engagement, and students' perceptions of the value and relevance of MHFA in relation to mental health knowledge, self-care, help-seeking and supporting others. The study also sought to inform the development of a bespoke course tailored to the needs of medical students.

Methods: MHFA was delivered in four half-day face-to-face sessions to Year 1 and 2 medical students at Kent and Medway Medical School. Data were collected via post-session questionnaires, in addition to post-course student-led focus groups and optional semi-structured individual interviews. Questionnaire data were analysed using descriptive statistics, and qualitative data were analysed thematically.

Results: Twenty-five students participated; 21 attended all four sessions (range was 21–25 students). In post-session questionnaires, students rated MHFA content positively in relation to self-care and supporting others, and noted areas of overlap with the medical curriculum, including psychosis, suicide and communication skills. Analysis of qualitative data from four focus groups (n=22) and nine individual interviews identified common themes. Students described generally positive experiences of MHFA training and valued having an adaptable framework for guiding conversations about mental health in professional and personal contexts. An additional theme related to suggestions for adapting the course to better suit the needs of medical students. These included a faster-paced format, case scenarios that more closely reflected medical student experiences, greater integration of skills practice, and increased focus on issues specific to medical students, such as disclosure of mental illness and fitness to practise, exam-related anxiety, and inclusion of doctors' lived experience of mental illness.

Conclusion: MHFA training was generally experienced positively by medical students and perceived as relevant to self-care and supporting others. Students also identified limitations in how well the course aligned with the specific contexts and pressures of medical training. Together, these findings support the development of a bespoke mental health support course for medical students, building on MHFA approaches while addressing discipline-specific needs.

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AUDIT^2 – Identification and Management of Alcohol Use Problems in the Southern Gambling Service: A Full Audit Cycle

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Aims: The re-audit aimed to assess compliance with previously implemented recommendations regarding alcohol assessment, intervention, documentation, and signposting for people with gambling disorder presenting to the Southern Gambling Service (SGS), and to evaluate improvements in practice since the initial audit.

Methods: The re-audit included all referrals received by the Southern Gambling Service (SGS) between 1 March 2025 and 30 September 2025 who completed an initial assessment.

Baseline data were analysed to stratify patients' alcohol use risk based on their extended Alcohol Use Disorder Identification Test (AUDIT-C) and Estimated Weekly Alcohol Consumption (EWAC), collected via a digital pre-assessment tool, with escalation to a full AUDIT where indicated. Clinical assessment letters and formulations were reviewed to assess documented compliance with National Institute for Health and Care Excellence (CG115) guidance, Department of Health and Social Care guidance, and Royal College of Physicians regarding appropriate management according to their risk brackets. Outcomes included: completion of full AUDIT for those meeting criteria; delivery and documentation of brief interventions for hazardous or harmful drinking; provision of advice on avoiding abrupt reduction for those scoring ≥20; delivery and documentation of formulations on alcohol use and signposting to specialist alcohol services where appropriate.

Results: A total of 301 referrals were received during the audit period, of which 124 referrals (41.2%) were accepted and assessed. AUDIT-C and EWAC were completed for 100% of assessed patients. Fifty-five patients (44.4%) met criteria for escalation and completed a full AUDIT. Of these, 27 patients (49.1%) scored 8 or above, indicating hazardous or harmful drinking, and 10 patients (18.2%) scored 20 or above, suggesting possible alcohol dependence. Among patients scoring ≥8, 18 (66.7%) received a documented brief intervention and 20 (74%) had an alcohol-related formulation