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# Total symptom count predicts functional (dissociative) seizures in patients with transient loss of consciousness

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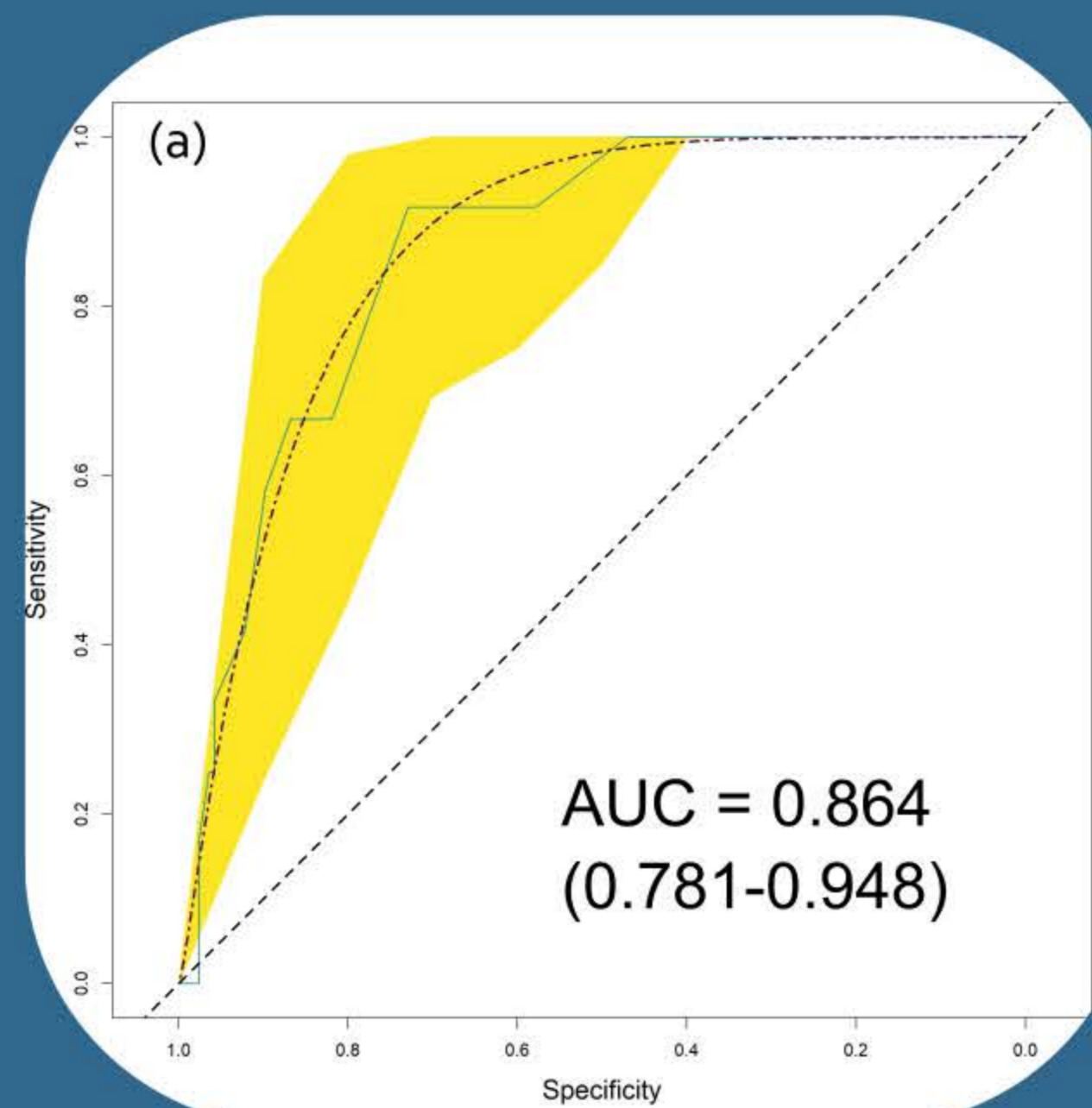
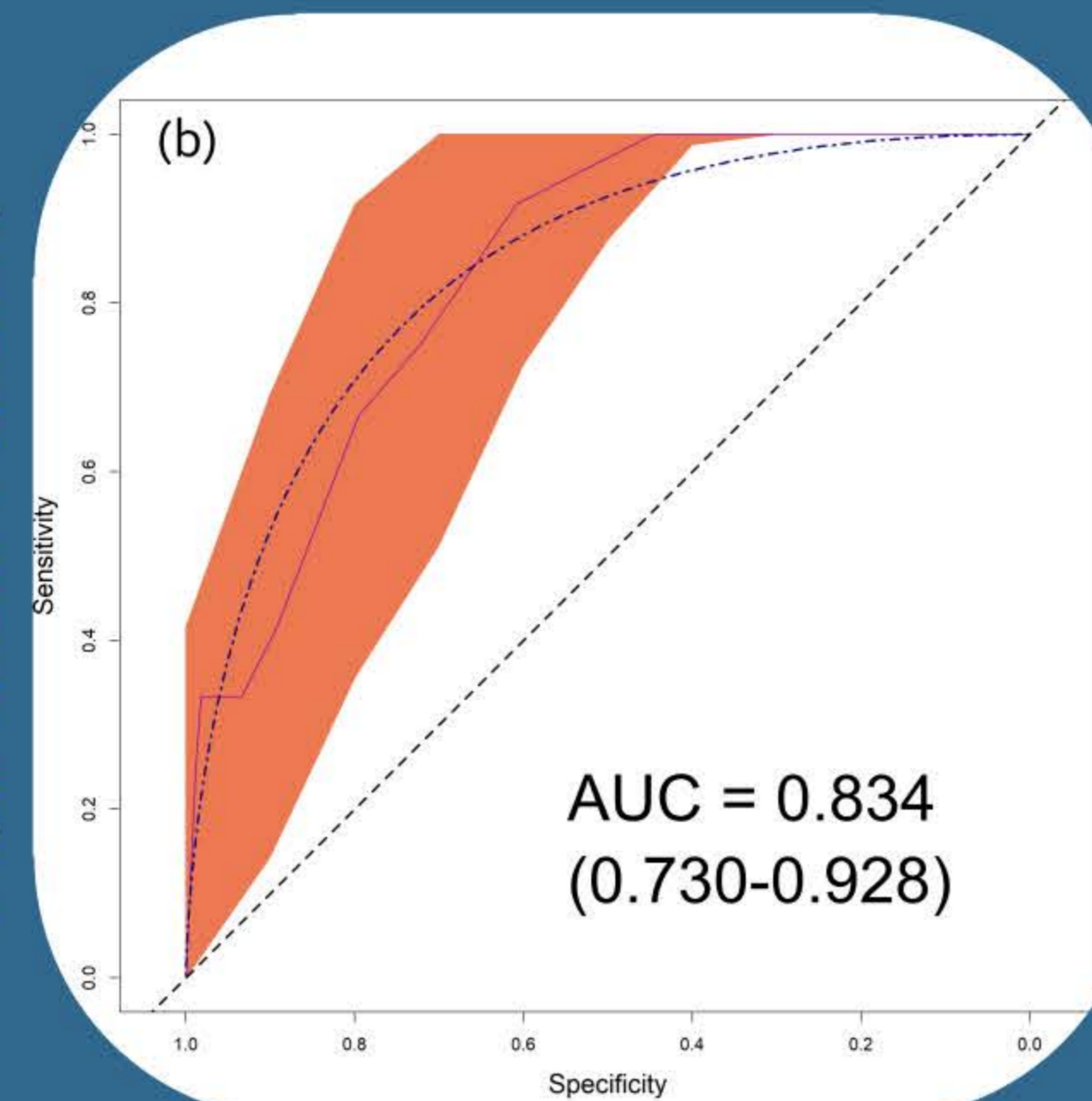


Fig. 1. ROC curves for total symptoms endorsed (left) and total comorbidities endorsed (right). Solid line - empirical ROC curve; dot-dash line - binomial smoothed curve; solid space - 95% confidence region. ROC = receiver operating characteristic. AUC = area under curve.



## 1. Introduction.

Transient loss of consciousness (TLOC) is one of the commonest acute neurological presentations.

Over 90% primary TLOC is due to syncope, epileptic seizures, or functional / dissociative seizures (FDS).

Diagnosis depends on history, but reporting is highly variable and dependent on clinician expertise.

Previous research suggests people with FDS may be more likely to report multiple comorbidities, and report more symptoms on review questionnaires.

## 3. Results.

Number of past medical history items (Kruskal-Wallis  $\chi^2 = 15.47$ ,  $df = 2$ ,  $p < 0.001$ ) and symptoms ( $\chi^2 = 19.73$ ,  $df = 2$ ,  $p < 0.001$ ) endorsed differed significantly between diagnoses.

Receiver-operating characteristic (ROC) curve for historical items (fig.1(b)) had area under curve (AUC) = 0.834 (95% confidence interval [CI] 0.730-0.928). A cutpoint of 6 or more items endorsed had sensitivity 0.75 and specificity 0.72 for FDS.

ROC curve for symptoms had AUC = 0.864 (0.781-0.948). 9 or more reported symptoms predicted FDS with sensitivity = 0.92, specificity = 0.73.

Diagnosis	N (%)	Median (range) age	Median (IQR) history items	Median (IQR) symptoms
Syncope	134 (75.3)	64 (17 - 94)	3 (4)	4 (5-75)
Epilepsy	32 (18.0)	47.5 (16 - 86)	3 (4)	6 (4)
FDS	12 (6.7)	31 (16 - 57)	6 (4.5)	12 (6.75)

Table 1. Participant demographics and differences in number of past medical history and symptom questionnaire items endorsed. FDS = functional/dissociative seizures. IQR = Inter-quartile range.

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We recruited consecutive patients with a first TLOC presentation from the Emergency Department, Acute Medical Unit, and first seizure or syncope clinics.

Participants completed a brief self-administered online questionnaire regarding 14 items of past medical history, and 35 perictal symptoms.

Reference standard diagnoses of epilepsy, syncope, or FDS determined by 2-expert rater review of notes at 6 months.

Answers used to develop and validate machine learning diagnostic classifier (results to follow).

## 2. Methods.

## 4. Conclusion.

On forced-choice questioning, patients with FDS report richer ictal experiences than those with epilepsy or syncope. The number of symptoms reported can be used to support diagnosis, as well as their nature.

Patients with FDS also report more comorbidities.

These factors have been suggested to discriminate between epilepsy and FDS with patients in established diagnoses; we demonstrate their value in the target population (first presentations of TLOC) and against other relevant comparator diagnoses (syncope).