



 ACLP
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*Promoting Whole Health
Through Innovative and
Integrative Approaches
to C-L Psychiatry*

Depressed or delirious? Misdiagnosis of mood disorders in medically hospitalized patients

Presenting author: Molly Howland, MD

Assistant Professor, Cleveland Clinic Lerner College of
Medicine

**Co-authors: Nicolas Thompson, Jay Owens, Arushi Mahajan, Nona Nichols,
Marielle Collins, Adele Viguera**

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Disclosure: Molly Howland, MD

With respect to the following presentation, in the 24 months prior to this declaration there has been no financial relationship of any kind between the party listed above and any ACCME-defined ineligible company which could be considered a conflict of interest.



Diversity, Equity and Inclusion

DEI Statement: We examined demographic variables that influenced the overdiagnosis of depression by non-psychiatric clinicians, including gender, race, and age. As depression may present in diverse ways across diverse demographics, this study illuminates biases and knowledge gaps that primary services may have about the clinical presentation of depression in understudied, historically marginalized populations. We also examined how these demographic variables may be associated with underdetection of delirium.

Food for thought

- Who here immediately questions whether a “depression” consult is really depression?

Objective

- We present an original, multi-site research study examining the rates of agreement between the primary service's consult reason and the C-L service's diagnosis

Background

- Misdiagnosis rates of both depression and delirium by non-psychiatric clinicians are high
- Delirium commonly presents with depressive symptoms and may be related to depression overdiagnosis
- Depression overdiagnosis can lead to delays in addressing delirium causes, receipt of unnecessary SSRIs, and stigmatization of normal emotional reactions

Background

- No recent U.S. studies have examined factors that lead primary services to overdetect depression and underdetect delirium masquerading as depression specifically
- We sought to determine why primary services might view a patient as depressed who is not truly depressed including:
 - *Patient demographic factors*
 - *Prior psychiatric diagnoses or psychiatric medications*
 - *Primary team specialty (medical versus surgical)*
 - *Time to psychiatry consult*

Methods

- Retrospective analysis of all depression, mania, and delirium consultations in 2022 across 2 Cleveland Clinic hospitals
 - Exclusion criteria: referrals for “history of” depression or delirium, referrals for “depression versus XYZ,” age <18, emergency room consults
- Extracted demographic and clinical data from electronic health record using Cleveland Clinic’s eResearch service
- Using a manual chart review guide written by presenter, five authors manually chart reviewed C-L diagnosis using the “diagnosis” section in the consult note. For regional site patients, we manually chart reviewed medical versus surgical specialty designation and demographic data that could not be automatically extracted

Methods

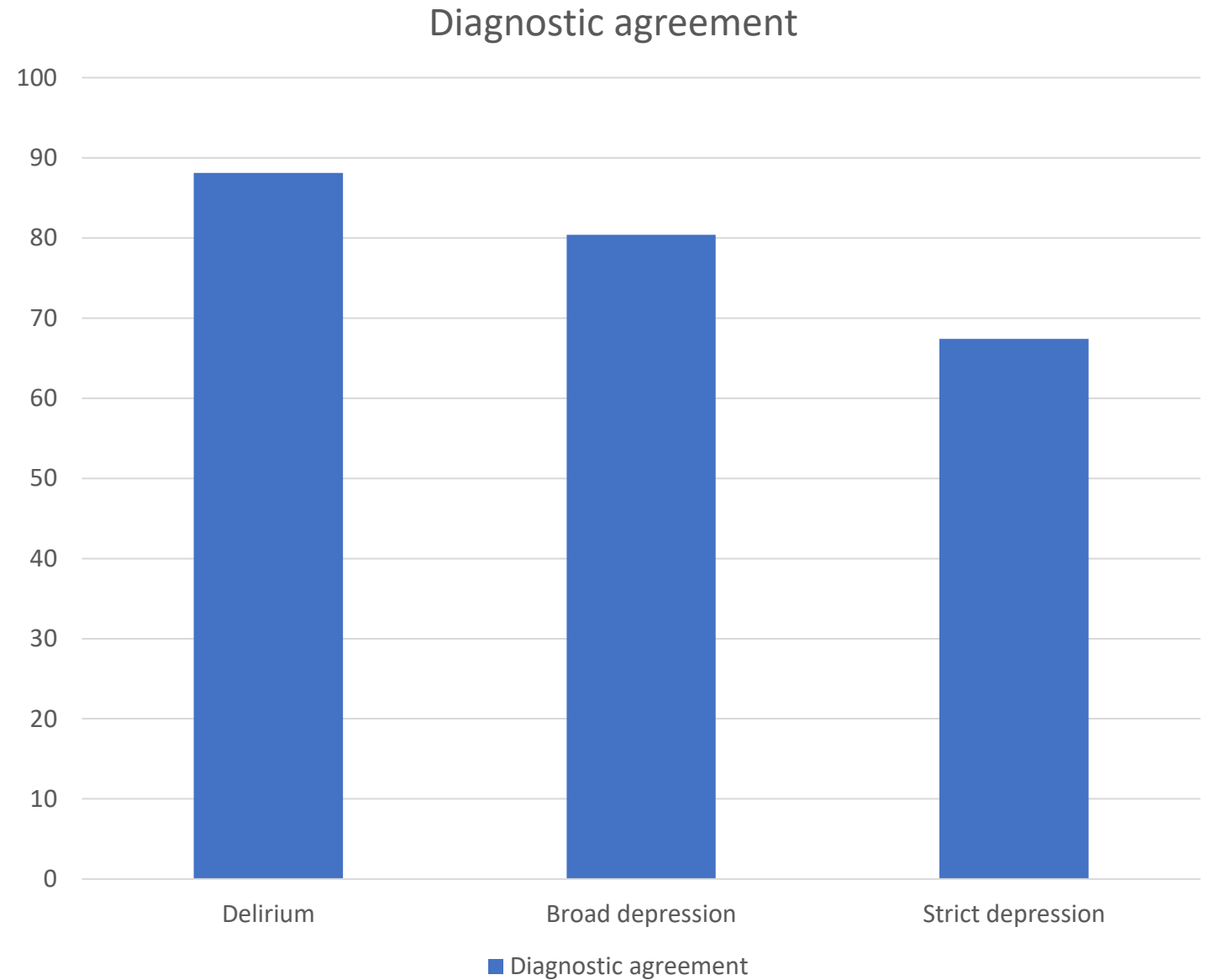
- Aim 1: Calculate agreement between primary service consultation reason and C-L service diagnosis using raw percent agreement
- Aim 2: Of depression consultations, compute the frequency and percent of final psych diagnoses
- Aim 3: Fit multivariable logistic regression models for the following independent variables:
 - Overdiagnosis of depression (primary service referred for depression but C-L diagnosis was not depression*)
 - Delirium masquerading as depression (primary service referred for depression but C-L diagnosis was delirium)

- * We used 2 depression definitions, broad and strict:
- *Broad: C-L service diagnosed depression or adjustment disorder*
 - *Strict: C-L service diagnosed depression only*

Results

- Demographics (N=989)
 - 50% males, 50% females
 - Mean age 64 (SD 18.6)
 - 75.6% white, 20.7% Black
 - 73% from medical service, 25% from surgical
 - 21.9% with prior psych diagnosis
 - 58.4% with prior psych medications

Results



Results

- Agreement for delirium referrals was 88.1%, indicating substantial agreement

		Final Psychiatric Diagnosis Delirium	
		Yes	No
Primary Service Referral for Delirium	Yes	343 (34.7%)	52 (5.3%)
	No	66 (6.7%)	528 (53.4%)

Results

- Agreement for depression referrals was 67.4% (strict depression diagnosis) and 80.4% (broad depression diagnosis), indicating fair and moderate agreement, respectively

		Final Psychiatric Diagnosis Depression	
		Yes	No
Primary Service Referral for Depression	Yes	272 (27.5%)	282 (28.5%)
	No	40 (4.0%)	395 (39.9%)

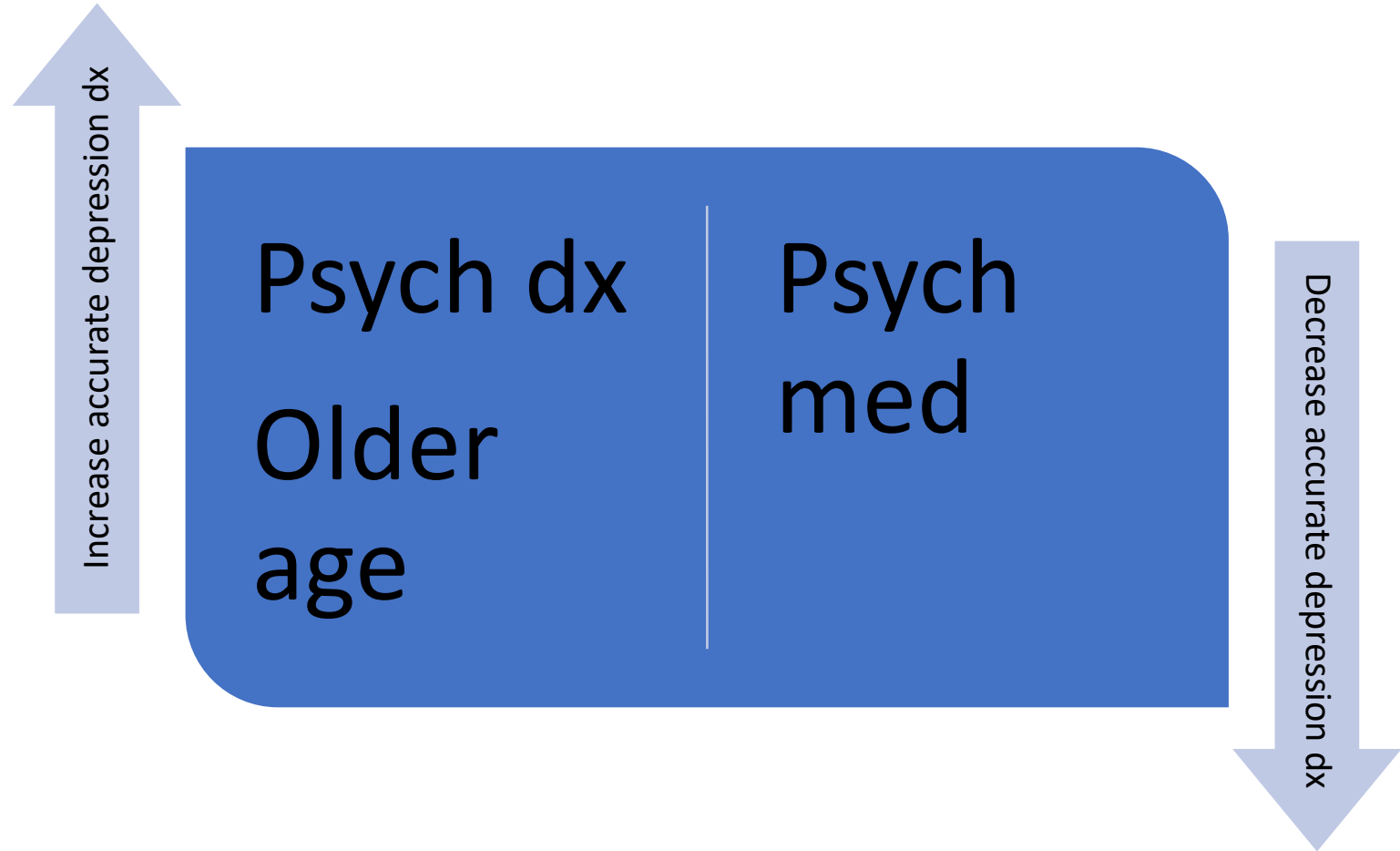
		Final Psychiatric Diagnosis Depression or Adjustment Disorders	
		Yes	No
Primary Service Referral for Depression	Yes	411 (41.6%)	143 (14.5%)
	No	51 (5.2%)	384 (38.8%)

Results

- Distribution of final C-L diagnosis among patients referred for depression who did not receive a C-L depression diagnosis

	Frequency (%)
Adjustment Disorders	139 (49.3%)
Anxiety/OCD	50 (17.7%)
Delirium	46 (16.3%)
Neurocognitive Disorders	8 (2.8%)
Neurodevelopment Disorders	1 (0.4%)
Personality Disorders	2 (0.7%)
Schizophrenia	3 (1.1%)
Trauma-related Disorders	9 (3.2%)
Other Psych Diagnosis	65 (23.0%)
No Psych Diagnosis	10 (3.5%)

Results



Results

- Older age was associated with a decreased odds of depression misdiagnosis. For each 10-year increase in age, the odds of a depression misdiagnosis decreased by 15% (strict depression definition; OR=0.85, 95% CI 0.78-0.91, $P<0.001$) or 20% (broad depression definition; OR=0.80, 95% CI 0.73-0.88, $P<0.001$)

Results

- Using strict depression definition: psychotropic medication use increased chance of delirium misdiagnosed as depression (OR 2.09, 95% CI 1.04-4.43, $p=0.046$), with a trend toward psychotropic medications increasing depression misdiagnosis generally (OR 1.31, 95% CI 0.96-1.79, $P=0.092$)
- A prior psychiatric diagnosis conferred a 34% lower chance of depression misdiagnosis (0.66, 95% CI 0.45-0.95, $p=0.028$)

Discussion

- Primary services overidentify depression, when anxiety, adjustment disorder, or delirium may be the underlying diagnosis
- They more accurately identify delirium (by a modest margin)
- Primary services have been better at identifying delirium than depression in old studies, but diagnostic accuracy improved for both delirium/depression

Discussion

- Primary services were better able to appreciate depression in older patients
- This is a novel finding that may relate to increased stoicism in older adults, leading to demonstrable depressive symptoms only when the patient is suffering from a true depressive episode

Discussion

- Prior psychiatric diagnoses such as depression may increase the likelihood of future depressive episodes, increasing accurate depression identification
- However, being on psychotropic medication increased the chance of delirium being misidentified as depression, suggesting possible bias

Discussion

- The specialty of the primary service (medical vs surgical) was not associated with depression overdiagnosis
- Patient gender and race were not associated with depression misdiagnosis, which is reassuring against primary service bias, or alternatively indicates that the primary service and psychiatry experience a similar amount of bias related to depression identification in these demographic groups

Strengths

- Large N
- Multisite
- Range of relevant patient- and team-level variables
- Using alternative definitions of depression to see how giving primary service “credit” for adjustment disorder affects agreement

Limitations

- Predominantly white population
- Unclear degree of certainty of the primary team's referral reason, and referrals did not involve DSM-5 diagnoses
- Unclear whether C-L service's diagnosis can be considered gold standard
- Adjustment disorder may constitute a catch-all diagnosis (there is no widely agreed upon way of documenting/billing for “normal emotional reaction”)

Conclusions

- Primary services are adept at identifying psychiatric distress and diagnostic accuracy is improving
- However, there are gaps in their knowledge of psychiatric presentations in the hospital setting
- Education is needed on the variable presentations of depression and delirium across age groups and the potential for biased assessments of patients on psychotropic medications
- Future studies should explore primary services' knowledge gaps and directly test their knowledge and attitudes about psych disorders to inform educational efforts
 - Informal teaching
 - Chalk talks
 - Trainees teaching trainees with attending supervision
 - What else?

References

- Boland RJ, Diaz S, Lamdan RM, Ramchandani D, McCartney JR. Overdiagnosis of depression in the general hospital. *Gen Hosp Psychiatry*. 1996 Jan;18(1):28-35. doi: 10.1016/0163-8343(95)00089-5. PMID: 8666210.
- Dilts SL Jr, Mann N, Dilts JG. Accuracy of referring psychiatric diagnosis on a consultation-liaison service. *Psychosomatics*. 2003 Sep-Oct;44(5):407-11. doi: 10.1176/appi.psy.44.5.407. PMID: 12954915.
- Farrell KR, Ganzini L. Misdiagnosing delirium as depression in medically ill elderly patients. *Arch Intern Med*. 1995 Dec 11-25;155(22):2459-64. PMID: 7503605.
- Hercus C, Hudaib AR. Delirium misdiagnosis risk in psychiatry: a machine learning-logistic regression predictive algorithm. *BMC Health Serv Res*. 2020 Feb 27;20(1):151. doi: 10.1186/s12913-020-5005-1. PMID: 32106845; PMCID: PMC7045404.
- Joshi A, Krishnamurthy VB, Purichia H, Hollar-Wilt L, Bixler E, Rapp M. "What's in a name?" Delirium by any other name would be as deadly. A review of the nature of delirium consultations. *J Psychiatr Pract*. 2012 Nov;18(6):413-8. doi: 10.1097/01.pra.0000422739.49377.17. PMID: 23160246.
- Kishi Y, Kato M, Okuyama T, Hosaka T, Mikami K, Meller W, Thurber S, Kathol R. Delirium: patient characteristics that predict a missed diagnosis at psychiatric consultation. *Gen Hosp Psychiatry*. 2007 Sep-Oct;29(5):442-5. doi: 10.1016/j.genhosppsych.2007.05.006. PMID: 17888812.
- Marchi M, Magarini FM, Mattei G, Pingani L, Moscara M, Galeazzi GM, Ferrari S. Diagnostic Agreement between Physicians and a Consultation-Liaison Psychiatry Team at a General Hospital: An Exploratory Study across 20 Years of Referrals. *Int J Environ Res Public Health*. 2021 Jan 17;18(2):749. doi: 10.3390/ijerph18020749. PMID: 33477280; PMCID: PMC7830763.
- Murray G, Judd F, Jackson H, Fraser C, Komiti A, Pattison P, Wearing A, Robins G. Big boys don't cry: An investigation of stoicism and its mental health outcomes. *Personality and Individual Differences*. 2008 Apr 1;44(6):1369-81.
- Nicholas LM, Lindsey BA. Delirium presenting with symptoms of depression. *Psychosomatics*. 1995 Sep-Oct;36(5):471-9. doi: 10.1016/S0033-3182(95)71628-0. PMID: 7568655.
- Su JA, Tsai CS, Hung TH, Chou SY. Change in accuracy of recognizing psychiatric disorders by non-psychiatric physicians: five-year data from a psychiatric consultation-liaison service. *Psychiatry Clin Neurosci*. 2011 Dec;65(7):618-23. doi: 10.1111/j.1440-1819.2011.02272.x. PMID: 22176280.