

# Identifying Psychosis in Patients With Dementia: Not a Hallucination or Delusion, the Challenge Really Exists

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## DISCLOSURES

Joan Forns, Bradley Layton, and Mary E. Ritchey are full-time employees of RTI Health Solutions, a unit of RTI International, a non-profit organization that conducts work for government, public, and private organizations, including pharmaceutical companies.

## BACKGROUND

- Psychosis is a common complication of many forms of dementia.
- Psychosis is often defined by the presence of hallucinations and/or delusions and by the presence of symptoms in other domains, such as formal thought disorder, abnormal motor behavior, and negative symptoms (e.g., blunted affect, poverty of speech, or apathy).
- The prevalence of psychosis differs by type of dementia, being higher in Parkinson's disease dementia (75%)<sup>1</sup> or dementia with Lewy bodies (50%-75%)<sup>2</sup> than in Alzheimer's disease or vascular dementia (approximately 50%).<sup>3,4</sup>
- The use of antipsychotics is second-line treatment for psychosis in patients with dementia when nonpharmacological approaches have failed. However, the United States (US) Food and Drug Administration issued an advisory and subsequent black box warning in antipsychotic labeling stating that treatment of behavioral disorders, including psychosis, in elderly patients with dementia is associated with increased mortality.
- Assessing the risk of mortality associated with antipsychotics requires correct identification of patients with psychosis associated with dementia and differentiation of other indications with strong association with mortality, such as delirium. This process may be challenging, particularly in automated health care databases where diagnosis code algorithms are used.

## OBJECTIVE

- To identify coding algorithms used to identify patients with psychosis associated with dementia in recent literature in studies conducted in automated health care databases.

## METHODS

- An initial targeted literature review, from 2008 to January 22, 2019, was conducted in PubMed to identify code algorithms used to identify psychosis associated with dementia in studies assessing the mortality risk among patients treated with antipsychotics.
- In view of the limited number of studies identified in the first literature search, we expanded our search by conducting a literature search in PubMed to identify studies assessing the epidemiology of psychosis in dementia with psychosis in automated health care databases.

## RESULTS

- 40 articles were selected for review among the 324 records identified in our search strategy encompassing studies assessing mortality risk among patients with psychosis associated with dementia treated with antipsychotics. Of them, 25 articles were excluded because identification of psychosis relied solely on medication use, 6 were excluded because they identified psychosis using patient-reported questionnaires, and 5 were excluded because the method to identify psychosis was not defined (e.g., psychosis was defined using diagnosis codes, but codes were not included in the publication) (Figure 1).
- A total of 4 articles including coding algorithms were included (Table 1):
  - Three studies conducted in the US by the same research group identified psychosis using the following ICD-9-CM codes: 293.81-2, 297.0-3, 297.8-9, 298.0-4, 298.8-9, 368.16, and 780.1.<sup>5,7</sup>
  - Another study conducted in Denmark defined psychosis as the "number of psychiatric beds days and number of psychiatric outpatient contacts after incident dementia diagnosis" as proxy markers of neuropsychiatric symptoms severity.<sup>8</sup>
- We identified 3 additional articles in the expanded literature search: 1 including psychosis as an outcome (Holt<sup>9</sup>) and 2 additional studies in which psychosis was included as a covariate:
  - A US study used the following definition: the standard definition required  $\geq 1$  medical claim with a diagnosis of psychosis (298.0, 298.1, 298.4-298.9), hallucinations (293.82, 368.16, 780.1), or delusions (293.81, 297.1). The strict definition required  $\geq 1$  medical claim with a diagnosis of psychosis and  $\geq 1$  medical claim with a diagnosis of hallucinations or delusions. The time-dependent definition required the same criteria as the standard definition but required a second claim with a diagnosis of psychosis, hallucinations, or delusions at least 30 days after the initial claim.<sup>9</sup>
  - A study conducted in Taiwan defined psychosis with the presence of one of the following ICD-9-CM codes: 780.1, 292, 292.1, 293.81-2, 297, 298.3-4, 301.0.<sup>10</sup>
  - Another study conducted in the US identified psychosis with ICD-9 codes 295.0-298.9 and 299.10-11.<sup>11</sup>

## CONCLUSIONS

- The majority of studies analyzing mortality in patients with dementia treated with antipsychotics did not identify psychosis with diagnosis codes, and most did not account for life-threatening conditions like delirium.
- Only 7 studies used coding algorithms to identify psychosis in patients with dementia.
- Most of these studies used similar codes to identify hallucinations (293.82 and 780.1) and delusions (293.81 and 297.1). However, these studies also included different sets of codes, including nonspecific codes, to identify psychosis.
- A validated coding algorithm updated to ICD-10-CM to identify psychosis related with dementia is recommended.

Figure 1. Article Selection Process

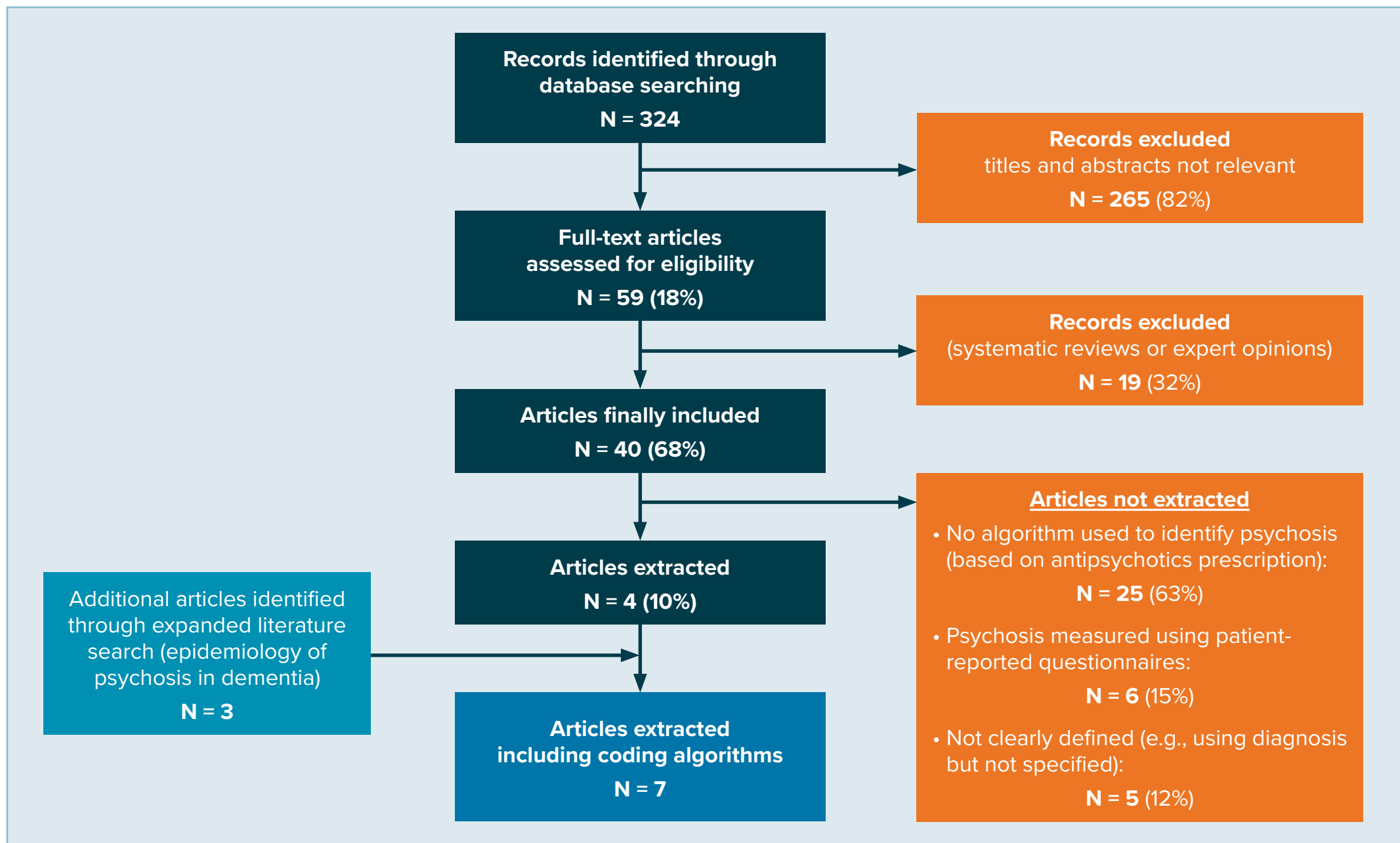


Table 1. List of ICD-9-CM Codes to Identify Psychosis in Patients With Dementia

ICD-9-CM Code	Description	Weintraub et al. <sup>5,7</sup>	Holt et al. <sup>9</sup>	Wu et al. <sup>10</sup>	Beydoun et al. <sup>11</sup>
292	Drug-induced mental disorders			✓	
292.1	Drug-induced psychotic disorders			✓	
293.81	Psychotic disorder with delusions in conditions classified elsewhere	✓	✓	✓	
293.82	Psychotic disorder with hallucinations in conditions classified elsewhere	✓	✓	✓	
295.x <sup>a</sup>	Schizophrenic disorders				✓
296.x <sup>b</sup>	Episodic mood disorders				✓
297	Delusional disorders			✓	✓
297.0	Paranoid state, simple	✓		✓	✓
297.1	Delusional disorder	✓	✓	✓	✓
297.2	Paraphrenia	✓		✓	✓
297.3	Shared psychotic disorder	✓		✓	✓
297.8	Other specified paranoid states	✓		✓	✓
297.9	Unspecified paranoid state	✓		✓	✓
298.0	Depressive type psychosis	✓	✓		✓
298.1	Excitatory type psychosis	✓	✓		✓
298.2	Reactive confusion	✓			✓
298.3	Acute paranoid reaction	✓		✓	✓
298.4	Psychogenic paranoid psychosis	✓	✓	✓	✓
298.8	Other and unspecified reactive psychosis	✓	✓		✓
298.9	Unspecified psychosis	✓	✓		✓
299.10	Childhood disintegrative disorder, current or active state				✓
299.11	Childhood disintegrative disorder, residual state				✓
301.0	Paranoid personality disorder			✓	
368.16	Psychophysical visual disturbances	✓	✓		
780.1	Hallucinations	✓	✓	✓	

<sup>a</sup>295.x codes do not include individual subcodes of the same category because, by definition, psychosis in dementia should not be part of an episode of schizophrenia.

<sup>b</sup>296.x codes do not include individual subcodes under the same category because, by definition, psychosis in dementia should not be part of an episode of mood disorder.

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