Economic Burden of Schizophrenia: A Systematic Literature Review

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Background

- Schizophrenia is a chronic, severe mental disorder that affects approximately 24 million people worldwide, corresponding to a point prevalence of 0.28% (95% UI: 0.24–0.31) [1,2]. Lifetime prevalence is estimated at around 0.7% [1].
- The disorder typically emerges in early adulthood and is associated with substantial functional impairment, high relapse rates, and increased premature mortality [1,2].
- Beyond its clinical burden, schizophrenia generates a significant economic and societal impact through:
  - — Direct costs: hospitalizations, outpatient visits, medication, long-term care [3–5].
  - — Indirect costs: unemployment, productivity loss, premature mortality, informal caregiving [3,6].
  - — Intangible costs: reduced quality of life, stigma, caregiver stress.
- In many countries, indirect costs exceed direct costs, highlighting the societal impact [3,6].
- A recent umbrella review (2024) confirmed that both direct and indirect costs remain high and heterogeneous across settings [7].

Objective

To conduct a systematic literature review (SLR), following PRISMA guidelines [8], in order to synthesize existing evidence and provide a comprehensive overview of the economic burden of schizophrenia worldwide.

Methods

Search strategy
Systematic searches were performed in PubMed [9], Medline (via NCBI) [10], and the Cochrane Library [11], supplemented by grey literature and manual review of bibliographies.
Search terms included: schizophrenia, psychosis, hallucination, paranoia, dementia praecox, cost, economic, burden

Timeframe
1990 – 2024

Eligibility criteria
Original full-text studies in English or Greek reporting direct, indirect, or total costs of schizophrenia.
Excluded: abstracts, reviews, meta-analyses, letters, editorials, presentations.

Screening & extraction
Two independent reviewers performed study selection, data extraction, and quality assessment; disagreements resolved by consensus.

Study flow
29,053 records identified; 23,961 after duplicates removed; 366 full-texts assessed; 34 studies included.

Results

Study selection
- From a total of 29,053 records identified (10,573 from databases, 39 from other sources, and 18,441 from a supplementary search in 2025), 23,961 remained after duplicate removal.
- 23,595 were excluded at title/abstract screening.
- A total of 366 full-text articles were assessed for eligibility, of which 248 were excluded.
- 34 studies (published 1994–2024) met the inclusion criteria for economic burden of schizophrenia (**Figure 1**).

Geographic distribution
- Most studies were conducted in Europe (38%) [5,12–23], with strong representation from Spain, the UK, Italy, Germany, France, and Scandinavia.
- Asia accounted for about a quarter of studies [24–32], covering India, South Korea, Taiwan, Japan, Malaysia, and China.
- The Americas contributed 24% [33–40], including Brazil, Puerto Rico, Canada, and the US.
- Only two studies originated from Africa [41,42], and two were multi-country collaborations [43,44].
- This imbalance underscores a reliance on high-income regions, with limited evidence from low- and middle-income countries (**Figure 2**).

Direct vs. indirect costs
- Direct costs consistently encompassed hospitalizations, outpatient services, medications, and long-term care, with inpatient treatment being the largest single driver in many settings [23].
- Annual per-patient direct costs ranged from <US$500 in Nigeria [41] to >€1 billion in Spain [5].
- Indirect costs, including lost productivity, unemployment, and caregiver time, frequently matched or exceeded direct costs (**Figure 3**)**,** with ratios of 1:1 in some European contexts [17], 3:1 in Ireland [15], and up to 5–7:1 in South Korea [24,25].
- Around 30% of studies reported only direct healthcare costs [5,20,22,23,29,30,32,33,39,43,44], underestimating the true societal burden.

Cost variability by country
- There was wide variability in the annual cost of schizophrenia across countries, reflecting differences in population size, healthcare systems, and costing methods.
- Smaller regions reported total yearly costs on the order of tens of millions: for example, about US$60 million in Puerto Rico [34] and ~€48 million in an Italian regional study [18].
- In contrast, larger economies saw costs in the billions per year, including Spain (~€3.0b) [5], Canada (C$8.9b) [35], and Japan (~US$23.8b, ≈¥2.4 trillion) [28].
- These findings underscore how the economic burden of schizophrenia can differ by orders of magnitude between countries.

Caregiver and societal burden
- Beyond direct healthcare costs, schizophrenia imposes a substantial burden on families and society.
- Few studies (~9%) explicitly measured informal caregiving costs, yet those that did highlighted substantial additional burdens [12,37].
- Caregivers often faced financial strain, lost productivity, and reduced quality of life. Indirect costs driven by unemployment, disability pensions, and premature mortality represented major contributors in many analyses [19,24,28,38,41].
- When a societal perspective was adopted, estimates were consistently higher than healthcare-only perspectives [15,35,44], demonstrating that narrow cost assessments underestimate the full impact.
- This indicates that traditional healthcare cost assessments may overlook roughly half of the total burden that falls on patients' families and society at large.

Research gaps and limitations
- Important gaps and methodological limitations were observed in the literature.
- Most studies originated from high-income countries, with very limited data from low-income regions.
- Many estimates are outdated, with over 40% of studies published are over 20 years old [5, 13-18,20,24-26,34-36], raising concerns about current relevance.
- There was considerable heterogeneity in methods, perspectives, and cost components included, complicating comparisons across countries.
- Indirect and intangible costs such as caregiver stress, stigma, and quality-of-life losses were rarely quantified, likely leading to underestimation of schizophrenia's true societal burden.

Figure 1. PRISMA flow diagram

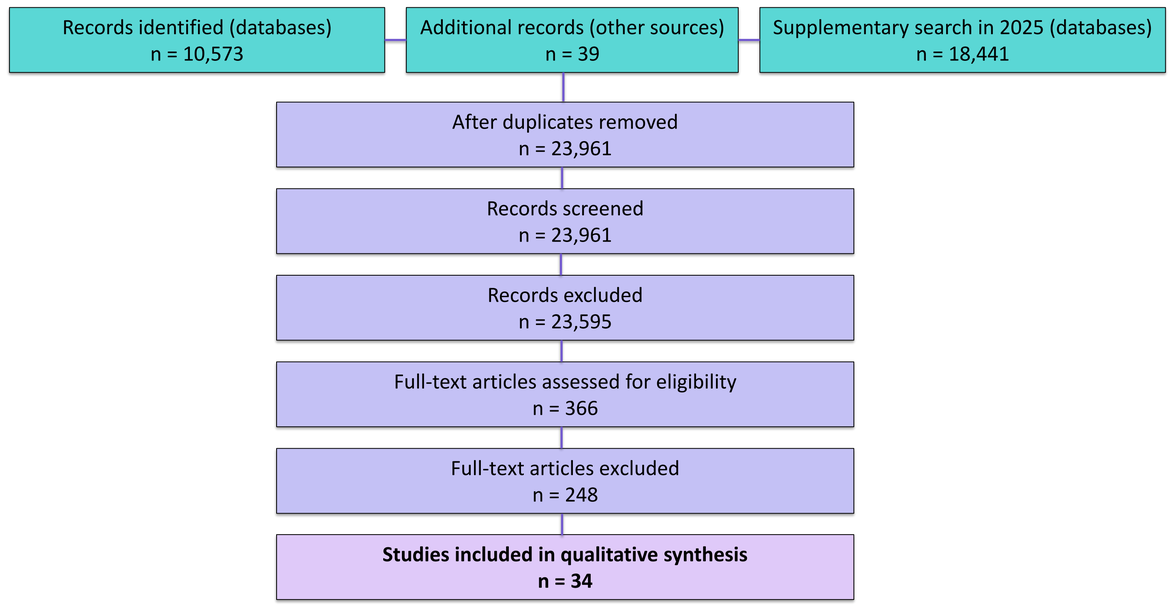


Figure 2. Distribution of studies by region

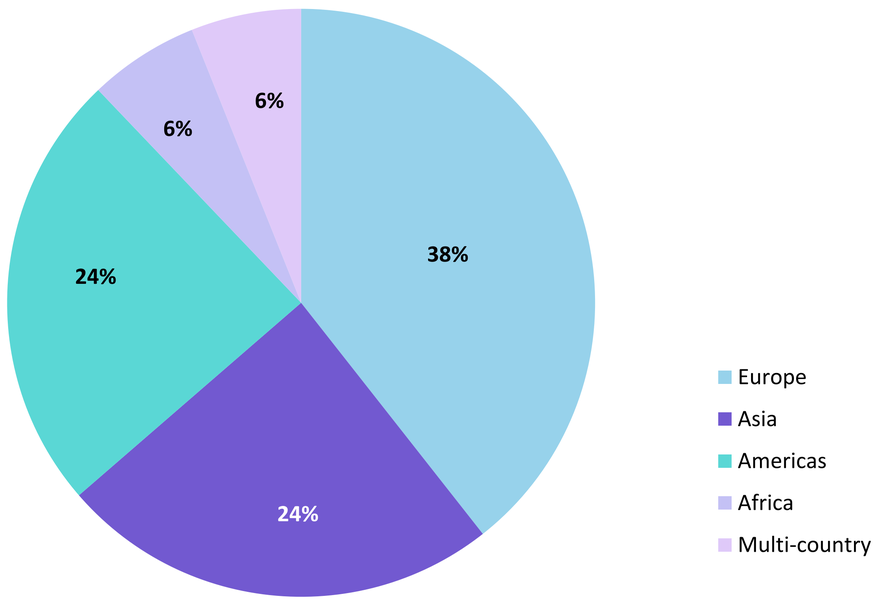
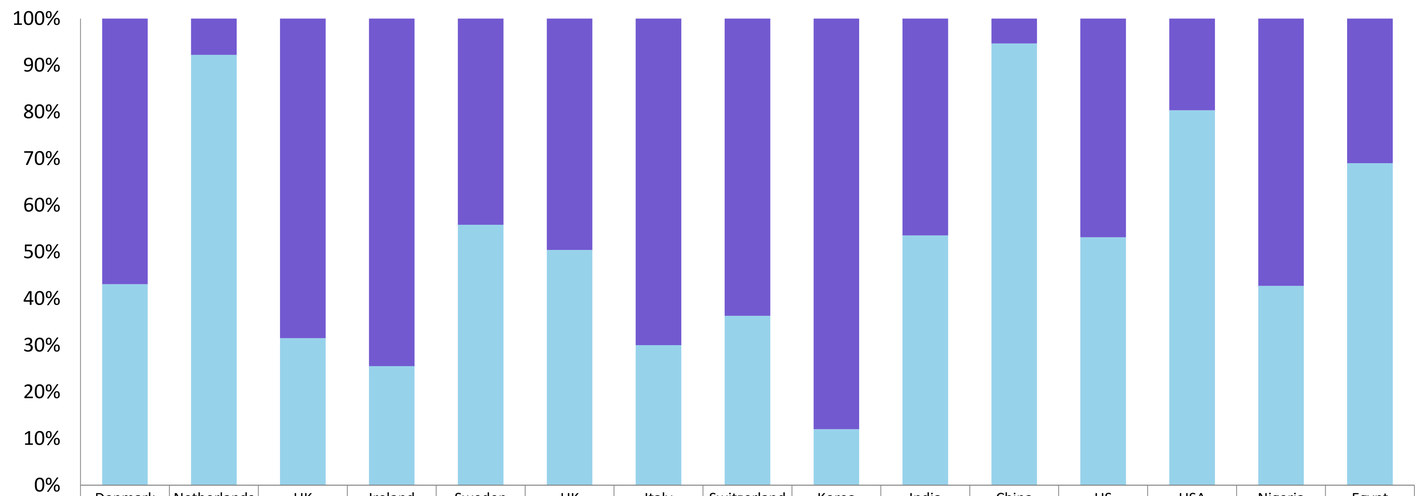


Figure 3. Distribution of direct versus indirect costs



	Denmark	Netherlands	UK	Ireland	Sweden	UK	Italy	Switzerland	Korea	India	China	US	USA	Nigeria	Egypt
Indirect%	57%	8%	68%	74%	44%	50%	70%	64%	88%	46%	5%	47%	20%	57%	31%
Direct%	43%	92%	32%	26%	56%	50%	30%	36%	12%	54%	95%	53%	80%	43%	69%

Conclusions

Schizophrenia imposes a substantial and enduring economic burden globally, driven by high healthcare utilization, productivity losses, and caregiver strain. Across studies, indirect costs frequently exceeded direct medical expenditures, reflecting the profound societal impact beyond the health system. Considerable variation in total costs across countries highlights the influence of methodological differences and health system structures. Evidence gaps persist, particularly in low- and middle-income settings, where underreporting and lack of standardized cost frameworks limit comparability. Future research should adopt comprehensive, standardized cost-of-illness methodologies that include societal and caregiver perspectives to better inform policy and resource allocation..

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