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REVIEW ARTICLE

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Mental health bias in physical care: An integrative review of the literature

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Accessible Summary

What is known on the subject?

- Individuals experiencing mental illness make up a significant portion of the world's population.
- Individuals with mental illness experience higher rates of morbidity and die on average at least a decade earlier than individuals without mental health disorders.

What this paper adds to existing knowledge?

- Issues of stigma, diagnostic overshadowing, premature closure, inadequate workup, fear and lack of training negatively impact the care of individuals with mental illness.
- Issues impacting the care of individuals experiencing mental illness cross geographic and care setting boundaries.

What are the implications for practice?

- Partnerships between physical and mental health practitioners are needed to thoroughly assess and accurately diagnose symptoms experienced by individuals with mental illness.
- Educational interventions can help prepare practitioners to care for individuals with mental illness.
- Nurses can better advocate for effective patient care by learning about the phenomenon of diagnostic overshadowing and calling attention to its occurrence.

Abstract

Introduction: Individuals with mental illness experience significantly higher overall rates of morbidity and mortality than counterparts without mental illness. Misdiagnosis of symptoms emanating from physical illnesses as psychiatric in nature presents one important cause.

Aim: This integrative review explores research on healthcare professionals' misattribution of physical health symptoms to patients' comorbid psychiatric issues and seeks to identify unifying themes, shared causes, and possible strategies for addressing the issue.

Method: This review uses Whittemore and Knafl's 2005 integrative review methodology coupled with vetted quality appraisal tools.

Results: Following a systematic search of allied health, medical, psychological, sociological and general literature, 24 publications employing qualitative, quantitative, mixed and synthesis research methodologies were selected. Each study was appraised according to design, and relevant data were extracted.

Discussion: Themes of stigmatization, diagnostic overshadowing, incomplete medical examination, insufficient training, and fears experienced by providers and patients emerged.

Implications for Practice: Increased partnering between physical and mental health practitioners, continuing education, and improving patient–provider communication are key to providing equitable care. Nurses play primary roles in empathizing with patients, advocating for appropriate care and educating others on the dangers of misattributing physical symptoms to psychiatric cause.

KEYWORDS
attitude of health personnel, comorbidity, diagnostic errors, mental disorders, stigma

1 | INTRODUCTION

Mental illnesses are as diverse as the individuals who experience them (McNally, 2011). Mental health issues and inequities accompanying them affect individuals from all races, gender identities and geographic origins (American Psychological Association, 2021). People with mental illness as a group experience health disparity out of synch with those faced by individuals without mental illness. These issues affect not only the psychological wellbeing of individuals but also their physical health as well (World Health Organization, 2022).

Individuals experiencing mental illness, whether acute or chronic, make up a significant portion of the world's population. The Institute for Health Metrics and Evaluation (IHME), a resource on which the World Health Organization (WHO) relies, indicates approximately 13% of the world's population of any age has a mental health disorder. This grouping of mental health disorders includes Anxiety, Attention-Deficit Hyperactivity, Autism Spectrum, Bipolar, Conduct, Depressive, and Eating Disorders, as well as Schizophrenia and Idiopathic Developmental Intellectual Disabilities (IHME, 2019).

Mental illnesses have vast and varying impacts across the globe, which seem to have only increased due to the COVID-19 pandemic. In addition to serious cardiovascular illness, the pandemic has brought with it psychologically relevant issues of isolation, economic insecurity, fear, mourning and anger. While lasting consequences are not yet evident, early reports indicate the global pandemic has increased the number of individuals affected by mental illness (Nochaiwong et al., 2021; United for Global Mental Health, 2020).

Mental illness is associated with physical morbidity and mortality. For example, women with serious mental illness have higher rates of kidney failure, cardiac incident and embolism when giving birth (Easter et al., 2021). Individuals with mental illness also face worse surgical outcomes, higher rates of operative complications, extended hospital stays, greater expense and increased surgery-related mortality (McBride et al., 2021; Tyerman et al., 2021). People with mental illness likewise have a greater likelihood of hospitalization and death from COVID-19 (Murphy et al., 2021).

Research indicates individuals with mental illness die on average at least a decade earlier than individuals without mental health disorders (de Mooij et al., 2019; Stefancic et al., 2021; Walker et al., 2015). Of those deaths, 67% emanate from heart disease and cancer, illnesses not directly related to a mental health diagnosis (Walker et al., 2015). This inequity extends across countries (Das-Munshi et al., 2017; de Mooij et al., 2019). As noted in one large review of mortality-related data and mental illness, "… excess mortality [is] associated with mental illness, for all psychiatric diagnoses considered, across all settings, and at all ages" (Lawrence et al., 2010, p. 757). And, despite perceived growth in the understanding of mental health, recent research suggests the mortality gap has widened (Fleetwood et al., 2021; Iturralde et al., 2021).

Despite the prevalence and physical impact of mental illness, societal stigma may outweigh damage directly caused by the illnesses (Gaebel et al., 2016). Individuals with mental illness encounter stigmatization not only within communities, education, employment, family life and judicial systems but also from healthcare personnel as well (Knaak et al., 2017). Patients with mental illness describe interactions in which healthcare providers either wholly dismiss physical symptoms (Happell et al., 2016) or offer inadequate care for physical conditions (Walker et al., 2015). Adults with mental illness face infantilization from their care providers while also feeling pressured to undergo treatments without information typically provided to peers without mental illness (Martínez-Martínez et al., 2021). In addition, individuals with mental illness experience misdiagnosis of their psychiatric disorders as physical in origin (Tesfaye et al., 2014) and, conversely, inappropriate diagnosis of their physical ailments as psychosomatic in nature (Welch & Carson, 2018). Thus, challenges within the healthcare system in general, and from healthcare providers in specific, may provide one explanation for the outsized morbidity and mortality rates experienced by individuals with mental illness.

2 | METHODS

2.1 | Problem identification and design

The aim of this integrative review is to explore research on healthcare professionals' misattribution of physical health symptoms to patients' comorbid psychiatric issues and to identify unifying themes, shared causes, and possible strategies for addressing the issue. Links between physical health disparities and mental health biases within healthcare are explored, as are issues individuals with mental illness encounter when seeking physical care, biases they may encounter and interventions for remediating these biases.

Integrative review methodology is appropriate to the investigation as qualitative, quantitative and theoretical research play necessary roles in providing a balanced view of the topic. The issue requires qualitative consideration of perspectives of individuals with mental illness, their loved ones, and physical and mental healthcare professionals. The topic necessitates inclusion of statistical analyses of admissions and outcomes data. Finally, review and theoretical research are key to learning what relevant consensus may already exist. By incorporating qualitative, quantitative and synthesis research, this review offers a unique perspective on physical health effects of provider bias for individuals with mental illness.

Conduct of this review followed integrative review methodology described by nurse theorists Robin Whittemore and Kathleen Knafl (2005). Whittemore and Knafl's (2005) methodology presents a five-stage process that includes problem identification, literature search, data evaluation, data analysis and presentation of a final synthesis. To ensure up-to-date application of the methodology, a 2020 integrative review co-authored by Whittemore (Magny-Normilus & Whittemore, 2020) was consulted. Direction was also drawn from the 2020 book *A Step-by-Step Guide to Conducting an Integrative Review* (Toronto & Remington, 2020). In addition, applicable Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance, extension documents and reporting procedures were used to increase methodological rigour (Page et al., 2021; Rethlefsen et al., 2021).

2.2 | Search strategy

Searches were informed by PRISMA-Searching Group (Rethlefsen et al., 2021) guidance, particularly in the conduct and reporting of unified interface searching of multiple databases. Searches of 17 databases spanning economics, education, general interest, government, healthcare, information science, mass media, psychology, sociology and sports medicine were conducted concurrently through the EBSCOhost interface (Table 1). Though focus overlaps within several tools, differences in indexing, description and coverage made searching closely related resources worthwhile. Relevant results came from the following eight tools: *Academic Search Premier*, *CINAHL Plus with Full Text*, *Education Source*, *ERIC*, *MEDLINE Complete*, *Military & Government Collection*, *APA PsycInfo* and *SPORTDiscus with Full Text* (Table 1).

TABLE 1 Databases searched (via EBSCOhost) and relevant results.

Databases searched	Relevant results?
Academic Search Premier	Yes
Business Source Premier	No
Child Development & Adolescent Studies	No
CINAHL Plus	Yes
Communication & Mass Media Complete	No
EconLit	No
Education Source	Yes
Environment Complete	No
ERIC	Yes
Hospitality & Tourism Complete	No
Library, Information Science & Technology Abstracts	No
MEDLINE Complete	Yes
Military & Government Collection	Yes
APA PsycInfo	Yes
APA PsycTests	No
SocINDEX	No
SPORTDiscus	Yes

Initial searches of *Google* and *Google Scholar* were used to help clarify evolving usage of terms related to misdiagnosis and mental illness. As selected database resources already cover a large, varied body of literature and integrative review methodology does not require exhaustive searches, additional intensive searches of tools like *Google Scholar*, government documents and other sources were determined to be extraneous, especially as references from relevant literature were also reviewed.

The following Boolean search phrase emerged after an iterative process of keyword and subject heading searches. Searching began with terms including "physical," "misdiagnosis" and "mental illness." From those initial searches, additional search terms were gleaned from relevant literature. Keywords and phrases identified through these iterative searches included terminology such as "diagnostic overshadowing" and "diagnostic errors," varying terms connoting mental health disorders and common mental illnesses, and physical symptoms frequently assumed to derive from psychological disorders. Ancillary search terms were mined from relevant resource-specific subject headings including CINAHL subject headings (EBSCO Industries, Inc., 2022), MEDLINE/PubMed MeSH subject headings (US National Library of Medicine, 2022) and Psychological Index Terms (American Psychological Association, 2022). After these initial broader searches of the literature, this Boolean phrase yielded results deemed most relevant to the research question.

> ("diagnostic overshadowing" OR misdiagnos* OR "mis-diagnos*" OR "missed diagnos*" OR misattribut* OR "diagnos* error*" OR "erroneous* diagnos*" OR "inaccura* diagnos*") AND ("mental health" OR "mental illness*" OR "mental disorder*"

OR "psychiatric illness*" OR "psychiatric disorder*" OR anxiety OR depression OR "obsessive compulsive" OR bipolar OR schizo*) AND (physical OR bowel OR intestin* OR headache* OR migraine* OR fibromyalgia OR sclerosis OR lupus) NOT "except mental health specialists"

To enable broader search replication, the phrase lacks platform-specific field identifiers (e.g., markers for heading or title fields) commonly applied in advanced searching. The phrase that stipulates results must have a term related to misdiagnosis and a term related to mental health. In turn, one term listed dealing with physical illness, including illnesses frequently attributed to psychological cause, must appear with terms from preceding sections. Finally, results with the phrase "except mental health specialists" were omitted as the phrase appears in headings not related to the research focus. Expanders for related terms and equivalent headings were also applied. Additional search history is available upon request.

2.3 | Eligibility criteria

Included research focuses on misdiagnosis of physical illness due to misattribution to comorbid psychiatric disorder. Automated filtering options within the EBSCOhost interface were used for publication review status, language and publication date. To afford a greater measure of research quality, automatic filtering was applied for peer or editorial review. Automatic English language filtering was also used. The year 2009 was selected as the earliest acceptable publication date to include more than a decade of research. This date also holds prominence due to moves towards mental health equity worldwide. In 2009, the WHO highlighted mental health bias with *Improving Health Systems and Services for Mental Health*, while the US government's Federal Collaborative for Health Disparities Research's Mental Health Science Group called for mental health to be formally recognized as an area of health disparity (Safran et al., 2009).

To meet inclusion criteria, selected publications must describe misdiagnosis of a physical health disorder as emanating from a psychiatric disorder. Research detailing incorrect diagnosis of illnesses as having psychiatric origin in individuals without preidentified mental disorders were excluded except in the case of study samples differentiating between individuals with and without pre-existing mental health diagnoses. Included publications must also appear in traditionally reviewed journal sections. This prohibition omitted commentary, editorials, letters to the editor, conference abstracts and book reviews.

A final eligibility requirement dealt with quality appraisal. Whittemore and Knafl's (2005) guidance for integrative reviews does not stipulate specific methodology for evaluating research quality and even makes allowances for limiting assessment only to research outliers. Though Whittemore and Knafl's method does not require extensive research appraisal, the number of appraisal tools has grown significantly since 2005. More recent guidance asserts, "… it is essential that all evidence be assessed for quality before inclusion in the IR [integrative review]" (Toronto & Remington, 2020, p. 46). The availability of a quality appraisal tool relevant to the research method described presented the last inclusion requirement (Table 2).

2.4 | Data evaluation

A vetted appraisal tool was used in assessing the quality for each publication. Checklists created by the Critical Appraisal Skills Program (CASP) were used for case–control, cohort, and qualitative studies and randomized controlled trials (2018a, 2018b, 2018c, 2020). CASP's checklist for systematic reviews (2018d) was adapted for use in assessing an integrative review. The Joanna Briggs Institute's (JBI) "Checklist for Case Reports" was used to evaluate case reports (2017). Both CASP and JBI note their checklists are meant for educational purposes, not scoring. Checklists include procedures common to research designs and provide guidance for ascertaining to what extent procedures were followed. The "Scale for the Assessment of Narrative Review Articles (SANRA)," which does offer a high/low rating scale, was employed in assessing narrative reviews (Baethge et al., 2019).

Most appraisal tools follow a "yes," "no," "could not tell" or "not applicable" checklist format. Only the SANRA tool (Baethge et al., 2019) significantly differs, instead using levelled statements ranging from negative (e.g., "The importance is not justified"), to neutral (e.g., "The importance is alluded to, but not explicitly justified"), to positive (e.g., "The importance is explicitly justified") and, as noted, incorporating a value-based numerical scoring system. To homogenize SANRA with other tools, positive SANRA answers were interpreted as "yes" answers, while numerical value-based scoring was omitted. Two of the 12 questions in the CASP cohort appraisal tool (2018a) not following the "yes" and "no" format were also adapted to provide better alignment.

The quantity of questions differs by tool ranging from six questions (SANRA) to 12 (cohort checklist). Though numerical scoring was not a goal of appraisals, some questions were adapted to increase the uniformity between assessments. For multi-part queries within single questions, responses were recorded as positive if all (for two-part questions) or most (for three-or-more-part questions) parts were positive.

Appraisals were then completed for each article by both authors. There were six instances in which scoring differed. These differences were resolved through consensus building. A total of "yes" or positive responses is recorded along with total questions per tool in Table 3.

TABLE 2 Inclusion criteria.

English language
Peer or editorial review
Publication ≥2009
Physical disorder misdiagnosis as pre-existing psychiatric disorder
No commentaries, editorials, letters to editor, conference abstracts, book reviews
Available appraisal tool

TABLE 3 Study characteristics and findings from individual studies.

Author, date	Purpose	Sample	Findings	Design and primary analysis	Appraisal tool	Positive responses
Bennebroek Evertsz' et al. (2020)	Investigate general versus specific illness beliefs on anxiety, depression, mental health (MH) in patients with inflammatory bowel disease (IBD), poor mental quality of life.	Netherlands, hospital, 118 patients with IBD and mental illness (MI)	Psychological interventions should target dysfunctional beliefs of patients with IBD and MI. Physical illness elicits emotional/ psychological response.	RCT; bivariate Pearson's correlations, linear regression analyses, multivariable regression	CASP RCT	8 of 11 questions
Cabassa et al. (2014)	Examine factors affecting physical health of individuals with MI.	US, 66 MH consumers, 25 MH clinicians, 21 MH administrators	Stigmatization, misattribution of physical symptoms to psychological cause. Patients deferring to providers, avoiding disagreement, mistrust providers and can experience poor body image.	Interview + limited participant observations; independent review of random cross-section of qualitative data	CASP Qualitative	10 of 10 questions
Chuttoo and Chuttoo (2019)	Identify ways primary healthcare nurses can better support individuals with serious MI.	UK (Great Britain), primary care, 1 patient with bipolar disorder and rheumatoid arthritis	Nurses should focus on occurrence of diagnostic overshadowing, stigma, build therapeutic relationship a healing ward environment, include family and caregivers, integrate MH professionals	Case; author discussion	JBI Checklist for Case Reports	8 of 8 questions
Emmanuel et al. (2021)	Present case of woman with severe skin irritation and co-occurring anxiety.	US, large senior community, 1 older adult patient	Thorough history taking, examination by general physicians led to interventions producing best outcome. Empathy necessary.	Case; author discussion	JBI Checklist for Case Reports	8 of 8 questions
Ewart et al. (2016) same group as Happell et al. (2016)	Explore MH consumers' experience obtaining physical healthcare.	Australia, focus groups, 31 mental health services consumers	Diagnostic overshadowing, stigma, failure of provider to act, lack of physical health resources, feeling of disempowerment for MH consumers obtaining physical care.	Interview/exploratory qualitative design; thematic analysis	CASP Qualitative	10 of 10 questions
Fernholm et al. (2020)	Examine factors correlating with higher patient safety incidents in EDs and primary care.	Sweden, 4536 cases, 44,949 controls	Patients with MH diagnosis have almost twice risk of unnecessary harm in frontline healthcare. Most common type is diagnostic error. Lesser experienced harms are suicide and inappropriate treatment.	Case–control; odds ratios using conditional logistic regression with matched case–controls	CASP Case–Control	11 of 11 questions
Geiss et al. (2018)	Create emergency department (ED) tool to help distinguish psychiatric and physical conditions.	US, trauma centre, 231 patients' admission records	Patients with delirium inappropriately placed in psychiatric unit. Age, arrythmia, temperature shared factors. Stigma towards individuals with MI can lead to diagnostic overshadowing.	Retrospective cohort; chi-square testing with logistic regression	CASP Cohort	9 of 12 questions
Happell et al. (2016) same group as Ewart et al. (2016)	Survey MH consumers on experiences and perceptions of physical healthcare.	Australia, focus groups, 31 mental health services consumers	Providers dismiss physical illness as MI, fail to provide appropriate care, patients stigmatized. Nurses can play vital role as care coordinators.	Interview; thematic analysis	CASP Qualitative	10 of 10 questions
Ho et al. (2022)	Synthesize qualitative, quantitative literature on views of caregivers of individuals with MI pertaining to physical healthcare received.	7 studies, focused on audience of nurses specializing in MH practice	MH nurses must be aware of risks of diagnostic overshadowing. Recognize role of family/loved one/informal caregivers in care coordination, communication.	Integrative review; JBI Critical Appraisal Checklist	CASP Systematic	9 of 10 questions
Holm et al. (2014)	Interview of older adults with depression on their views of perceptions of their physical illnesses.	Norway, 15 older adults with depression	Older adults with depression are stigmatized and their physical health issues not taken seriously. Nurses should present information with sensitivity, work towards care plan to limit poor outcomes.	Interview; hermeneutic analysis	CASP Qualitative	10 of 10 questions

(Continues)

TABLE 3 (Continued)

Author, date	Purpose	Sample	Findings	Design and primary analysis	Appraisal tool	Positive responses
Knaak et al. (2017)	Examine barriers to care and quality of care related to MI stigmatization in healthcare.	International with Canadian focus, 66 publications on personal and interpersonal MI stigma in healthcare, impacts, solutions.	Healthcare providers discriminate against individuals with MI, have unconscious biases, self-stigmatize. Feel ill equipped to care for individuals with MI issues. Individuals with MI report physical ailments not taken seriously. Solutions include culture change, not single trainings. Continuing education programmes covered.	Narrative review; author discussion	SANRA	4 of 6 questions
Lawson (2018)	Review literature on diagnostic reasoning, discuss reasons for inaccurate diagnoses.	International, nurse practitioner-focused, 26 publications	Diagnostic accuracy may improve by incorporating debiasing strategies, applying Dual Process Theory. Themes: cognitive biases, debiasing, Dual Process Theory, diagnostic error, patient harm.	Narrative review; dimensional analysis	SANRA	6 of 6 questions
Lowry et al. (2021)	Examine patient characteristics related to inaccurate knee disorder diagnoses.	Canada, orthopaedic and primary care clinics, 279 patients	Depressive symptoms in patients commonly tied to knee disorder misdiagnoses. Claims to be first study looking at issue of patient characteristic, not practitioner bias.	Retrospective cohort; descriptive statistics, multivariable logistic regression	CASP Cohort	9 of 12 questions
Martínez-Martínez et al. (2021)	Explore perspectives of individuals with MI towards healthcare professionals.	Spain, focus groups, 25 individuals with MI	Stigma, greater medical paternalism experienced by individuals with MI. Patients with MI experience malpractice, overmedication. Stereotypes, prejudice and compromised care.	Interview; content analysis	CASP Qualitative	10 of 10 questions
Nash (2014)	Investigate views of individuals with MI receiving diabetes care.	UK, 7 individuals with diabetes in mental health advocacy and support groups	Stigma, diagnostic overshadowing, divide between physical and mental health, diabetes-related health complications worsened by miscommunication and lack of knowledge in MH setting.	Interview; thematic analysis	CASP Qualitative	9 of 10 questions
Noblett et al. (2017)	Learn what liaisons in hospital psychiatry believe about quality of care in general hospital setting for individuals with MI.	UK, 267 attendees of Royal College of Psychiatrists Faculty of Liaison Psychiatry Annual Conference	Stigma, diagnostic overshadowing, poor communication, need for greater cooperation between general hospital staff and liaison psychiatry professionals and education.	Interview; thematic analysis	CASP Qualitative	10 of 10 questions
Portier et al. (2017)	Present case with symptoms of PTSD, medication side effects, but caused by endocrine disorder.	US, Naval hospital, 1 Chief Petty Officer	Differential diagnosis, thorough workup, and partnership between physical and mental health providers needed.	Case; laboratory	JBI Checklist for Case Reports	8 of 8 questions
Reeves et al. (2010a)	Conduct chart review of patients aged 65+ years to psychiatric units to determine whether delirium patients inappropriately referred.	US, VA hospital psychiatric unit, public hospital psychiatric unit, 2001–2007. Patients aged 65+: 900 (VA), 413 (public)	30 (2.3%) records indicate delirium, inappropriate referral. 20 (66.7%) of patients have MI history. Full medical workup not conducted. Patients with MI more likely to have delirium misattributed to MI. Clinician bias, MI stigma.	Retrospective cohort; multiple descriptive and inferential statistics	CASP Cohort	10 of 12 questions
Reeves et al. (2010b)	Conduct chart review of admissions to psychiatric units to determine whether physical illness was misdiagnosed.	US, Veterans Administration (VA) hospital psychiatric unit, public hospital psychiatric unit, 2001–2007. Patients: 1340 (VA), 613 (public)	55 (2.8%) records indicate physical illness. Thorough medical and cognitive workups not carried out, leading to misattribution of symptoms. 47 (85%) had prior history of MI. Bias, stigma towards MI may affect clinician decision-making.	Retrospective cohort; multiple descriptive and inferential statistics	CASP Cohort	10 of 12 questions

TABLE 3 (Continued)

Author, date	Purpose	Sample	Findings	Design and primary analysis	Appraisal tool	Positive responses
Rivera-Segarra et al. (2019)	Explore perceptions of patients with MI held by physical care professionals.	Puerto Rico, 8 physicians, 3 nurses	Stigma, diagnostic overshadowing, fear, blaming patients, lack of training for physical care professionals working with individuals with MI.	Interview; thematic analysis	CASP Qualitative	10 of 10 questions
Shefer et al. (2015)	Develop recommendations for ED diagnosis of patients with MI.	UK (Great Britain), ED, 15 physicians, 4 nurses	Barriers between ED staff and psychiatry staff exist to patient detriment.	Interview; RAND Appropriateness Method	CASP Qualitative	10 of 10 questions
Shefer et al. (2014)	Investigate scope of misattribution of physical symptoms to MI in ED.	UK (Great Britain), ED, 39 doctors, 4 nurses	Stigma, misattributing physical issues to MI leads to patient demoralization, untreated illness, death. Complex case presentations, disruptive behaviours, frequent ED usage, poor communication, crowding and time constraints.	Interview; thematic analysis	CASP Qualitative	10 of 10 questions
van Nieuwenhuizen et al. (2013)	Investigate ED misdiagnosis of physical issues as MI.	UK (Great Britain), ED, 15 nurses, 8 physicians, 2 nurse practitioners	Diagnostic overshadowing, cooperation between ED staff, psychiatry. Challenging history taking, lack of MI knowledge, push for quick discharge, clinician avoidance of patients with MI.	Interview; thematic analysis	CASP Qualitative	10 of 10 questions
Yamauchi et al. (2019)	Measure effects of physician awareness of patient economics, schizophrenia.	Japan, 5 hospitals, 207 medical residents	In simulated clinical vignettes, patients with schizophrenia history receive reduced care, lower likability scores than other patients.	RCT; repeated measures ANOVA	CASP RCT	10 of 11 questions

3 | FINDINGS

3.1 | Study selection

A search in mid-December 2021 yielded 1010 results (Figure 1). Automatic de-duplication of exact matches left 715 results. Remaining results were reviewed at the title level. Abstracts of 90 articles with promising or unclear titles were reviewed. The full text of 35 articles seeming to meet inclusion criteria was reviewed. Retrieved articles' citations were also searched for relevant publications not already identified. Citation analysis yielded four additional publications. Of the 39 articles reviewed, 24 met inclusion criteria. Both authors conducted in-depth analyses on this final 24 articles (Table 3).

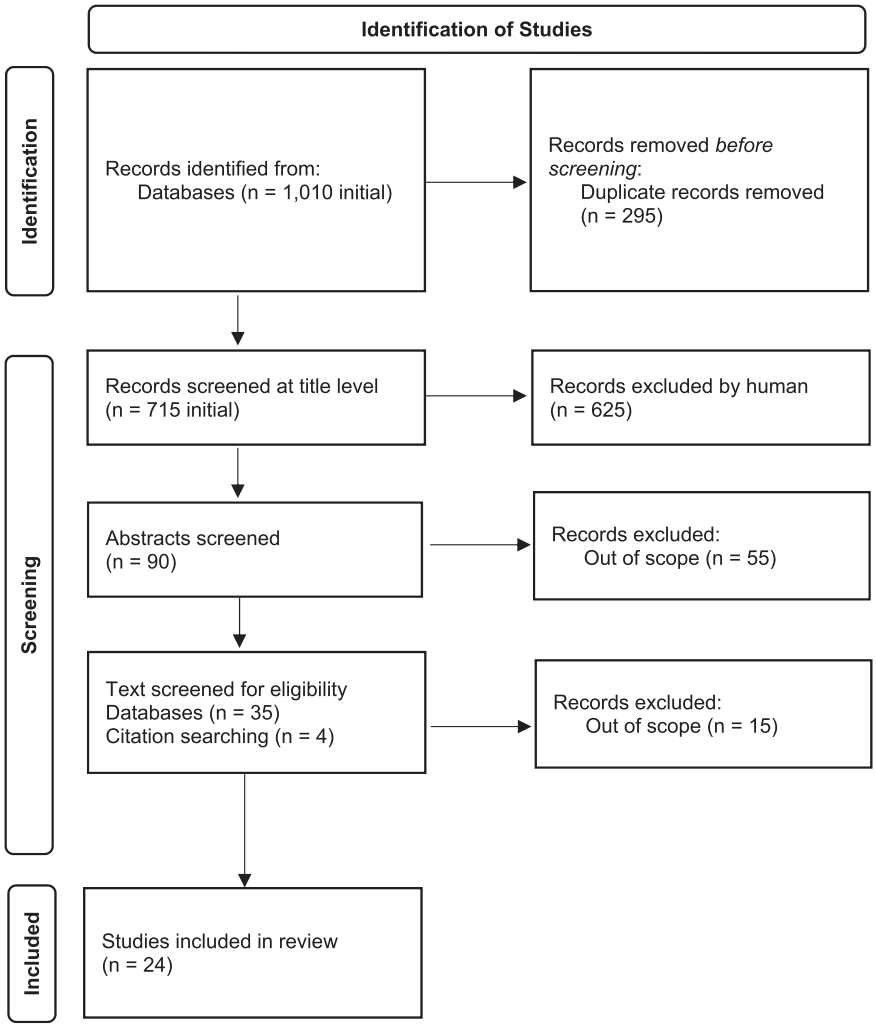
3.2 | Data analysis

Article information was extracted, summarized and categorized using several tools. Citations and article descriptors were collected using the citation software Zotero. Authors, publication date, purpose, design, findings, appraisal tool used and appraisal response were recorded to an Excel spreadsheet-based matrix. Full text of articles was combined in a single searchable PDF file using Adobe Acrobat Professional. Data from the matrix, individual appraisal forms and keyword searches of the PDF combining the full text were used to synthesize findings, detect overarching themes and identify practice implications (Table 3).

3.3 | Synthesis of findings

Table 3 provides an overview of each study's characteristics. Included are: study purpose; geographic location, setting, and participants; findings and themes; research design and primary method of data analysis if applicable; vetted appraisal tool used; and general appraisal findings. Six included studies (Ewart et al., 2016; Happell et al., 2016; Reeves et al., 2010a, 2010b; Shefer et al., 2014, 2015) emanate from similar study populations and share lead researchers. Inclusion of these similar studies is warranted as research questions, subpopulations and/or researcher teams differ across most studies, yielding unique results. While research populations and methods of thematic analysis appear identical in the publications by Ewart et al. (2016) and Happell et al. (2016) emanating from the same study, the publications offer differently nuanced findings, conclusions and recommendations.

Reflecting the international nature of the issue, included empirical studies originate from multiple countries and territories. Research comes from Australia (Ewart et al., 2016; Happell et al., 2016), Canada (Lowry et al., 2021), Japan (Yamauchi et al., 2019), the Netherlands (Bennebroek Evertsz' et al., 2020), Norway (Holm et al., 2014), Puerto Rico (Rivera-Segarra et al., 2019), Spain (Martínez-Martínez et al., 2021),



Adapted from Page et al. (2021)

FIGURE 1 Adapted PRISMA 2020 flow diagram.

Sweden (Fernholm et al., 2020), the United Kingdom (Chuttoo & Chuttoo, 2019; Nash, 2014; Noblett et al., 2017; Shefer et al., 2014, 2015; van Nieuwenhuizen et al., 2013) and the United States (Cabassa et al., 2014; Emmanuel et al., 2021; Geiss et al., 2018; Portier et al., 2017; Reeves et al., 2010a, 2010b). As is noted in a discussion of review limitations, the sample's geographic distribution is likely not representative of the scope of research on the issue due to exclusion of non-English language publications.

Empirical research studies primarily make up the sample. Research methodologies and sample sizes range from single-case studies (Castaño Ramírez et al., 2020; Chuttoo & Chuttoo, 2019; Emmanuel et al., 2021; Portier et al., 2017), to case–control methods (Fernholm et al., 2020), to retrospective cohort analyses of fewer than 300 participants (Geiss et al., 2018; Lowry et al., 2021), to those exceeding 1300 participants (Fernholm et al., 2020; Reeves et al., 2010a, 2010b). Interview research is also well represented in the sample in the form of mental healthcare service consumer and caregiver (Ewart et al., 2016; Happell et al., 2016; Holm et al., 2014; Martínez-Martínez et al., 2021; Nash, 2014) and provider groups (Cabassa et al., 2014; Noblett et al., 2017; Rivera-Segarra et al., 2019; Shefer et al., 2014, 2015; van Nieuwenhuizen et al., 2013). Though randomized controlled trials are uncommon for this subjective, ethically challenging topic, two such studies were deemed relevant for inclusion. One study explores perspectives of patients with co-occurring intestinal and mental health conditions (Bennebroek Evertsz' et al., 2020), while the other measures medical residents' responses to clinical vignettes (Yamauchi et al., 2019). Pooling all presumptively unique participants, these studies cover some 54,149 research participants across multiple continents.

As noted in Table 3 authors of the empirical studies employed varying method of data analysis. Where applicable, statistical analyses in these studies encompass varied applications of descriptive and inferential statistical methods including simple statistical comparisons, linear regression, logistic regression, chi-square testing and bivariate Pearson's correlations. Interview and other qualitatively focused research studies primarily made use of thematic analysis methods.

Two narrative reviews (Knaak et al., 2017; Lawson, 2018) and one integrative review (Ho et al., 2022) comprise the remainder of the sample. These reviews provide unique perspectives on differing aspects of the literature. The nurse practitioner-focused review by

Lawson (2018) describes a systematic search and details common biases leading to errors in diagnostic reasoning. Knaak et al.' (2017) Health Canada-funded overview does not appear to have followed a specific methodology in search or in results reporting. However, its findings on stigma towards individuals with mental illness, barriers to appropriate care and possible interventions echo themes present across multiple publications while also providing a governmental systems perspective unique within the sample. The integrative review by Ho et al. (2022) follows Whittemore and Knafl's (Whittemore & Knafl, 2005) methodology, applies appraisal criteria from JBI in analyses and focuses on perspectives of individuals with mental illness seeking physical care.

4 | DISCUSSION

4.1 | Strength of evidence

As noted, appraisal tools used in this research do not apply labels such as "high," "low," "good" and "poor." Instead, the tools query on the presence of procedures common to a study type. This practice refrains from penalizing research that deviates from usual paths due to research intent, setting or population need.

Issues of ethics, not historical strong points for research involving individuals with mental illness (Smilan, 2020), can make application of "gold standard" facets of study design untenable. For instance, concealment of interventions (commonly, and somewhat troublingly, termed "blinding") can increase distrust between study participants, researchers and care providers (Smirnoff et al., 2018).

If appraisal results had been assigned numerical percentages, then the lowest scoring study within the sample would be the Netherlands-based randomized controlled trial (Bennebroek Evertsz' et al., 2020) at 73%. This study, however, deals with actual patients contending with physical and psychological distress, circumstances for which concealment from either the patient or the researcher would likely not be in the best interest of the patient. For good reason, concealment from both participants and researchers did not occur in either randomized controlled trial. The clinical vignette-based randomized study (Yamauchi et al., 2019) did conceal some information from participants, but this research presented participants with theoretical scenarios, reducing the chance of extenuating harm.

Application of appraisal tools for multiple research designs is something not yet common across published integrative reviews, increasing the uniqueness of the current review. While appraisal tools are commonly employed in systematic review and meta-analysis research, those types of synthesis often incorporate a small range of study methodologies, necessitating a limited number of appraisal tools. For instance, quantitative research with a focus on the randomized controlled trial most often appears in systematic review and meta-analytic research analyses.

Integrative review methodology encourages use of quantitative, qualitative and theoretical research as appropriate to the research question. Application of highly heterogenous assessment tools to studies within integrative review is not so straightforward. In addition, many appraisal tools have only become available within the last decade; tools used in this review all came into existence in their current formats post-2016. As variety, knowledge about and usage of such tools continue to grow, it is hoped their usage will become more common. The recent integrative review by Ho et al. (2022) signals this change is underway by employing JBI quality assessment tools in its analysis of seven studies.

4.2 | Unifying themes

4.2.1 | Stigma

Several shared themes exist in the research sample. Stigma is both a term and a concept addressed in all publications. The stigmatization of individuals with mental illness occurs throughout societies, influencing the health professionals within them (Chuttoo & Chuttoo, 2019; Rivera-Segarra et al., 2019). Further, stigma is identified as a key factor behind misdiagnosis of physical issues as psychosomatic in nature (Cabassa et al., 2014; Ho et al., 2022; Holm et al., 2014; Knaak et al., 2017; Lawson, 2018; Nash, 2014; Noblett et al., 2017; Reeves et al., 2010a, 2010b; Rivera-Segarra et al., 2019; Shefer et al., 2014; van Nieuwenhuizen et al., 2013; Yamauchi et al., 2019). Individuals with mental illness may avoid seeking needed care due to fear of stigma from care providers (Bennebroek Evertsz' et al., 2020; Ewart et al., 2016; Happell et al., 2016; Holm et al., 2014; Martínez-Martínez et al., 2021). Providers themselves may self-stigmatize, avoiding necessary diagnosis and treatment for their own mental health concerns (Knaak et al., 2017).

4.2.2 | Diagnostic overshadowing

Building on prior research (Nash, 2013), Trinity College Dublin's Michael Nash describes diagnostic overshadowing as "stigma in action" (2014, p. 719). Though the phrase is not employed in all research in this sample, the concept of diagnostic overshadowing is omnipresent and provides a succinct expression for the phenomenon of diagnostic error due to healthcare providers' misattribution of physical disorder to comorbid mental illness.

Multiple articles within the sample describe the phenomenon of "diagnostic overshadowing" and directly apply the term (Chuttoo & Chuttoo, 2019; Ewart et al., 2016; Fernholm et al., 2020; Geiss et al., 2018; Happell et al., 2016; Ho et al., 2022; Holm et al., 2014; Lawson, 2018; Lowry et al., 2021; Nash, 2014; Noblett et al., 2017; Rivera-Segarra et al., 2019; Shefer et al., 2014, 2015; van Nieuwenhuizen et al., 2013). Predating the time period of this analysis, Jones et al. (2008) provide what has become a foundational definition for diagnostic overshadowing within the context of mental illness and physical health. These authors describe diagnostic

overshadowing as the "process by which physical symptoms are misattributed to mental illness" (Jones et al., 2008, p. 169). This term, originally applied to psychological disorders going undiagnosed due to individuals' comorbid intellectual disabilities (Reiss et al., 1982), has become more frequently used in relation to misdiagnosed comorbid physical and mental illness (Geiss et al., 2018; Lawson, 2018; Lowry et al., 2021; Molloy, Brand, et al., 2021; Molloy, Munro, & Pope, 2021; Shefer et al., 2014; van Nieuwenhuizen et al., 2013).

4.2.3 | Premature closure and inadequate workup

Factors contributing to diagnostic overshadowing also lead clinicians to engage in premature closure, the act of ceasing to explore for other causes of an illness after formulating an initial hypothesis (Lawson, 2018). Prematurely ending diagnostic processes contributes to incomplete medical workups, an issue cited across several studies (Emmanuel et al., 2021; Lawson, 2018; Lowry et al., 2021; Portier et al., 2017; Reeves et al., 2010a, 2010b; Shefer et al., 2014; van Nieuwenhuizen et al., 2013). Insufficient diagnostic procedures are not limited to a specific setting; the issue exists in specialty practices (Emmanuel et al., 2021; Lowry et al., 2021), outpatient clinics (Reeves et al., 2010a, 2010b), emergency departments (Geiss et al., 2018; Reeves et al., 2010a, 2010b; Shefer et al., 2014, 2015; van Nieuwenhuizen et al., 2013) and hospitals (Shefer et al., 2014; Yamauchi et al., 2019).

4.2.4 | Time

Time constraints are noted as a significant contributor to inadequate diagnostic efforts (Ewart et al., 2016; Geiss et al., 2018; Noblett et al., 2017; Reeves et al., 2010b; Shefer et al., 2014; van Nieuwenhuizen et al., 2013). Targeted time limits for triaging or discharging patients presents one cause (Shefer et al., 2014) along with high demand settings producing multiple time pressures (Chuttoo & Chuttoo, 2019).

4.2.5 | Fear

Fear of challenging behaviours or violence from patients with mental illness is cited across several studies as a reason for professionals' compromised patient communication and care (Cabassa et al., 2014; Geiss et al., 2018; Knaak et al., 2017; Noblett et al., 2017; Rivera-Segarra et al., 2019; Shefer et al., 2014; van Nieuwenhuizen et al., 2013). Fear of dismissal and maltreatment by care providers also leads individuals with mental illness to avoid seeking care for their physical conditions (Chuttoo & Chuttoo, 2019; Ewart et al., 2016; Happell et al., 2016; Holm et al., 2014; Martínez-Martínez et al., 2021; Shefer et al., 2014). Fear expressed by other patients without mental illness may also unnecessarily complicate the triage of patients with mental illness (Rivera-Segarra et al., 2019).

4.2.6 | Lack of training

Lack of training in working with individuals with mental illness is cited in several studies as a factor leading to misdiagnosis of these individuals when they need care for physical illnesses (Cabassa et al., 2014; Ho et al., 2022; Knaak et al., 2017; Martínez-Martínez et al., 2021; Noblett et al., 2017; Rivera-Segarra et al., 2019; Shefer et al., 2014, 2015; van Nieuwenhuizen et al., 2013). Conversely, education in recognizing and dealing with physical illness is noted as a discrepancy in the training of mental health professionals, particularly nurses specializing in psychiatric care (Nash, 2014; Shefer et al., 2014).

4.2.7 | Interventions

Research within the sample suggests several possible methods for controlling or preventing negative effects on patient care. Multiple authors recommend fostering better partnerships between physical and mental health practitioners, particularly at the point of patient need (Chuttoo & Chuttoo, 2019; Noblett et al., 2017; Portier et al., 2017; Shefer et al., 2015; van Nieuwenhuizen et al., 2013). Such research argues mental health providers can better differentiate symptoms caused by mental health conditions (van Nieuwenhuizen et al., 2013) and act as final safeguards for patients with mental illness whose physical ailments are misdiagnosed (Shefer et al., 2014). Research also suggests that combined physical and mental healthcare appointments may enable people with mental illness to better manage both aspects of their health (Chuttoo & Chuttoo, 2019; Nash, 2014).

Authors also advocate interventions focused on professionals providing physical healthcare. They recommend point-of-care decision support tools (Geiss et al., 2018), better and more targeted education at pre-professional and professional levels (Knaak et al., 2017; Nash, 2014; Noblett et al., 2017; Rivera-Segarra et al., 2019), guidance on debiasing strategies (Lawson, 2018), fostering of interpersonal empathy (Emmanuel et al., 2021), creation of patient-specific action plans (Holm et al., 2014), and the enacting of hospital-wide systematic approaches (Fernholm et al., 2020; Noblett et al., 2017; Rivera-Segarra et al., 2019) as methods for decreasing misdiagnosis and prejudice. Several authors focus in particular on the important role of nurses. Whether nurses work in emergency departments, primary care or psychiatric inpatient units, their roles are critical in communicating with patients (Chuttoo & Chuttoo, 2019; Nash, 2014), providing empathy (Holm et al., 2014), advocating for appropriate care (Ewart et al., 2016; Happell et al., 2016) and educating other clinicians on the dangers of diagnostic overshadowing (Geiss et al., 2018).

4.3 | Limitations and implications for further research

A healthcare librarian with two decades of searching experience conducted the multi-part literature search. No matter how detailed

the search, though, likely not all relevant materials were detected or screened. In addition to issues of publication bias, indexer differences in heading assignments, database availability and search algorithm changes, errors in the material detection process were undoubtedly present.

JBI recently completed a qualitative systematic review of six studies dealing with diagnostic overshadowing from the perspectives of mental health consumers and healthcare providers (Molloy, Brand, et al., 2021). It is hoped that, as the body of primary research on the topic grows, more reviews will be conducted to provide greater perspective on implications and solutions. An author of the current review recently conducted a conceptual analysis on the evolving meaning of the phrase "diagnostic overshadowing" within healthcare and psychological literature (Hallyburton, 2022), but additional syntheses are needed.

While search results were not restricted by geographic location, limitation to English language publications constrained the review's reach. Future research would benefit from inclusion of a more geographically diverse sampling to ascertain whether patterns of practitioner behaviour and patient perception continue across additional countries and less similar health systems, or whether different and even more salient themes emerge.

Greater exploration of types of somatic illnesses more often misattributed to psychosomatic is also needed. For example, delving further into the misdiagnosis of specific diseases like autoimmune and bowel disorders, fibromyalgia, and myalgic encephalomyelitis/chronic fatigue syndrome may aid in healthcare provider diagnostic training as well as the creation and sharpening of clinical decision aids.

The current review is also limited in scope. Of note, attribution of physical illnesses to psychiatric causes affects individuals without mental illness as well. Individuals without mental illness may experience symptoms such as stroke-related hallucinations (Castaño Ramírez et al., 2020), psychosis from Lyme disease, depression due to thyroid dysfunction (Stanford et al., 2020) and numerous other indicators appearing as psychological in nature but caused by physical illness instead (Schildkrout, 2014). Inappropriate labelling of symptoms as psychological can lead not just to unnecessary medication and psychiatric hold but also omission of life-saving and injury-limiting care (Castaño Ramírez et al., 2020; Schildkrout, 2014). Future explorations into misattribution of somatic illness to psychosomatic cause in individuals without mental illness may provide important perspective on ways mental health stigmatization harms even those without such illnesses.

5 | CONCLUSION

Healthcare providers and their patients share similar goals: giving or receiving effective care to decrease suffering and increase wellbeing. Arriving at a correct diagnosis of the cause of suffering is critical to providing appropriate care.

As this research suggests, care professionals experience challenges in making accurate diagnoses of physical issues that occur in individuals with mental health disorders. Biases arising from stigmatization of mental illness feed into the propensity towards diagnostic overshadowing. As stigma against mental illnesses and individuals who have them is a primary theme across the research sample, addressing the stigma's source would offer an optimum solution. However, these stigmas are endemic throughout societies, not only within healthcare. The broad scope of the issue is daunting, especially for care providers who daily work directly with clients facing this disparity.

How can a problem driven by a global cause be addressed at a non-global level? Awareness of the issue of mental health-related misdiagnosis is a first critical move to make as individuals. Other interventions identified in this research can be enacted at individual and institutional levels as well. No one answer will suffice in all situations. However, the scope of the problem and healthcare's identity as a transformative profession require the pursuit of those answers.

6 | RELEVANCE STATEMENT

Individuals with mental illness experience higher rates of early mortality than individuals without mental health disorders. Though multiple factors contribute to this disparity, misattribution of physical symptoms to pre-existing mental disorders can cause delayed diagnosis, inappropriate treatment and further stigmatization of individuals with mental illness. This research examines this phenomenon of misdiagnosis. By learning about these risks, nurses can better advocate for and provide effective patient care.

CONFLICT OF INTEREST STATEMENT

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DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated.

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