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Review article

Functional neurological disorder and functional somatic syndromes among sexual and gender minority people: A scoping review

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ABSTRACT

Objective: To describe the current literature on functional neurological disorder and functional somatic syndromes among sexual and gender minority people (SGM).

Methods: A search string with descriptors of SGM identity and functional disorders was entered into PubMed, Embase, Web of Science, PsycInfo, and CINAHL for articles published before May 24, 2022, yielding 3121 items entered into Covidence, where 835 duplicates were removed. A neurologist and neuropsychiatrist screened titles and abstracts based on predefined criteria, followed by full-text review. A third neurologist adjudicated discrepancies. Eligible publications underwent systematic data extraction and statistical description.

Results: Our search identified 26 articles on functional disorders among SGM people. Most articles were case (13/26, 46%) or cross-sectional (4/26, 15%) studies. Gender minority people were represented in 50% of studies. Reported diagnoses included fibromyalgia ($n = 8$), functional neurological disorder (n = 8), somatic symptom disorder ($n = 5$), chronic fatigue syndrome ($n = 3$), irritable bowel syndrome ($n = 2$), and other functional conditions (n = 3). Three cohort studies of fibromyalgia or somatic symptom disorder reported an overrepresentation of gender minority people compared to cisgender cohorts or general population measures. Approximately half of case studies reported pediatric or adolescent onset (7/13, 54%), functional neurological disorder diagnosis (7/13, 54%), and symptom improvement coinciding with identity-affirming therapeutic interventions (7/13, 58%).

Conclusion: Despite a methodologically rigorous literature search, there are limited data on functional neurological disorder and functional somatic syndromes among SGM people. Several studies reported increased prevalence of select conditions among transgender people. More observational studies are needed regarding the epidemiology and clinical course of functional disorders among SGM people.

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1. Introduction

Health disparities research among sexual and gender minority (SGM) people has demonstrated reduced access to care and an increased risk of medical and neuropsychiatric morbidity across a range of conditions [1–4]. Despite recent advances, important knowledge gaps remain due to limited professional education [5] and widespread conflation of assigned sex and gender identity [6], as well as a limited focus on sexual behavior and sexual orientation in health sciences research historically [5,7]. In particular, the prevalence and clinical features of functional neurological disorder (FND) and functional somatic syndromes, referred to collectively here as functional disorders (FDs),among SGM people is poorly understood. Supplement 1 provides descriptors of commonly-used terminology among SGM communities.

FDs represent a set of heterogeneous conditions where distressing symptoms manifest across a range of organ systems, comprising a frequent presentation to adult and pediatric primary care as well as specialist disciplines including but not limited to neurology, psychiatry, rheumatology, and gastroenterology [8–10]. While the classification of FDs is complex and subject to ongoing debate, diagnoses encompassing distinctive patterns of symptoms remain prominent, including FND (previously conversion disorder) and functional somatic syndromes (FSS) such as irritable bowel syndrome (IBS), fibromyalgia, and chronic fatigue syndrome (CFS). In addition, overarching diagnoses have evolved emphasizing the frequent occurrence of symptoms in multiple organ systems with a high level of associated concern and impairment, somatic symptom disorder (SSD) [11] and bodily distress disorder [12] representing current examples.

FDs can be costly, disabling [13], and often co-occur [14–16], suggesting shared risk factors and pathophysiology despite their diverse symptomatology [13,17,18]. A range of psychological and cognitive mechanisms are thought to contribute to FD symptomatology, including biased attentional processing [19,20], catastrophizing [21], alexithymia [22,23], and dissociation [24], while altered interactions between the brain and specific organ systems (e.g., visceral hypersensitivity, gut-brain axis, heart-brain axis) may contribute especially to particular phenotypic subtypes [25].

Consequently, integrative frameworks encompassing processes at multiple conceptual levels have evolved in relation to FDs, including biopsychosocial formulation [26], aberrant predictive processing [27,28], nosiplastic pain mechanisms [29], somatosensory amplification [30], and stress-diathesis models [31] representing prevailing explanatory approaches [26,31,32]. Interestingly, relevant factors in FD development and chronicity such as adverse life experiences [33], chronic stress [17], and stigma in healthcare settings [34] are also disproportionately experienced by SGM people [1–3]. Accordingly, SGM people may be at increased risk of FDs compared to their cisgender, heterosexual peers and existing research may be limited. This scoping review aims to describe the current state of data on SGM people with FDs with a focus on FND, FSS, and SSD.

2. Methods

The study team created a scoping review protocol to address predefined objectives pertaining to assessing the breadth and level of evidence on FDs among SGM people. Inclusion/exclusion criteria (Table 1) and search strategies (Supplement 2) were developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extended guidelines for scoping reviews (PRISMA-ScR) [35] under the supervision of a dedicated medical librarian (C.S.).

The search string was iteratively expanded from previously published review protocols [7,36–38], prioritizing recurring nosological terms, controlled vocabulary (i.e., subject headings), and disorders with established diagnostic criteria accepted by major professional organizations [39]. The database searches were performed in PubMed, Embase, Web of Science, PsycInfo, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) for peer-reviewed, full-text, English-language articles from inception up to May 24, 2022.

Table 1
Prespecified eligibility criteria for article inclusion in scoping review.

Inclusion Criteria	Includes an identified SGM person(s)
	Discrete diagnosis of a functional, somatoform, or related disorder
	Publication in a peer-reviewed journal (with full-text availability)
	Qualitative and quantitative studies (including case reports/series)
	Any year of publication (up to May 24, 2022)
	Any age, race, or ethnicity of subjects
Exclusion Criteria	Only includes bodily symptoms which do not meet criteria for a discrete functional disorder (e.g., chronic pain patterns such as low back pain)
	Non-English language
	No original data published
	No full text available
	Duplicate entries

SGM: Sexual and Gender Minority.

The literature search yielded 3121 articles, which were entered into Covidence [40] for duplicate deletion and title/abstract/full text screening (see Fig. 1) [41]. A neurologist (M.L.) and neuropsychiatrist (M.F.) screened study titles and abstracts based on predefined criteria, followed by a full-text review. A third neurologist (N.R.) adjudicated discrepancies.

Twenty-nine publications were found eligible for data extraction, which was conducted in Google Sheets using a systematic data entry form including study-level characteristics (publication date, country of origin, study design) as well as subject-level demographic and clinical variables such as presentation, assessment/diagnosis, and treatment/prognosis. Descriptive statistics were performed on the extracted results and summarized for review by all co-authors prior to reporting. Three additional studies were excluded after study team discussion due to likelihood of an alternative diagnosis (e.g., factitious disorder, spinal cord injury) based on clinical observations [42], imaging data [39], or biochemical abnormalities on lab studies [43], resulting in a total of 26 articles included for quality rating [44] and synthesis [4,45–69].

3. Results

Most of the identified articles were qualitative studies (16/26, 67%) including 13 case reports/series. Forty-two percent (11/26) originated in the United States. Most studies were published in journals dedicated to mental health (11/26, 42%) and internal medicine (9/26, 35%). Over half (14/26, 54%) were published between January 1, 2010 and May 24, 2022. See Table 2 for a summary of eligible study characteristics.

Transgender or gender nonbinary-identifying people were included in 7/16 (44%) of qualitative studies and 6/10 (60%) of population studies. No intersex people were specifically reported in the eligible articles. Few observational studies reported demographic data for SGM people with FDs specifically (1/10, 10%). Among case studies, age was the most commonly reported demographic variable with over half of included articles described patients with pediatric or adolescent onset (7/13, 54%) [46,50,56,58,61,65,67].

FSS were reported in the largest number of studies, including fibromyalgia ($n = 8$), CFS ($n = 3$), and IBS ($n = 2$). FND was reported in 8 studies, while somatic symptom disorder/somatoform disorder (SSD/SD) comprised 5 studies. 3 other studies included a case series of "amplified pain syndrome" and two reports of unspecified "hysteria" that likely included non-FND presentations [47,56,67]. The methodological quality of the literature is presented in Table 3 and a summary of observational studies with bias risk analysis is provided in Supplement 3. Supplement 4 provides a summary table of the case literature.

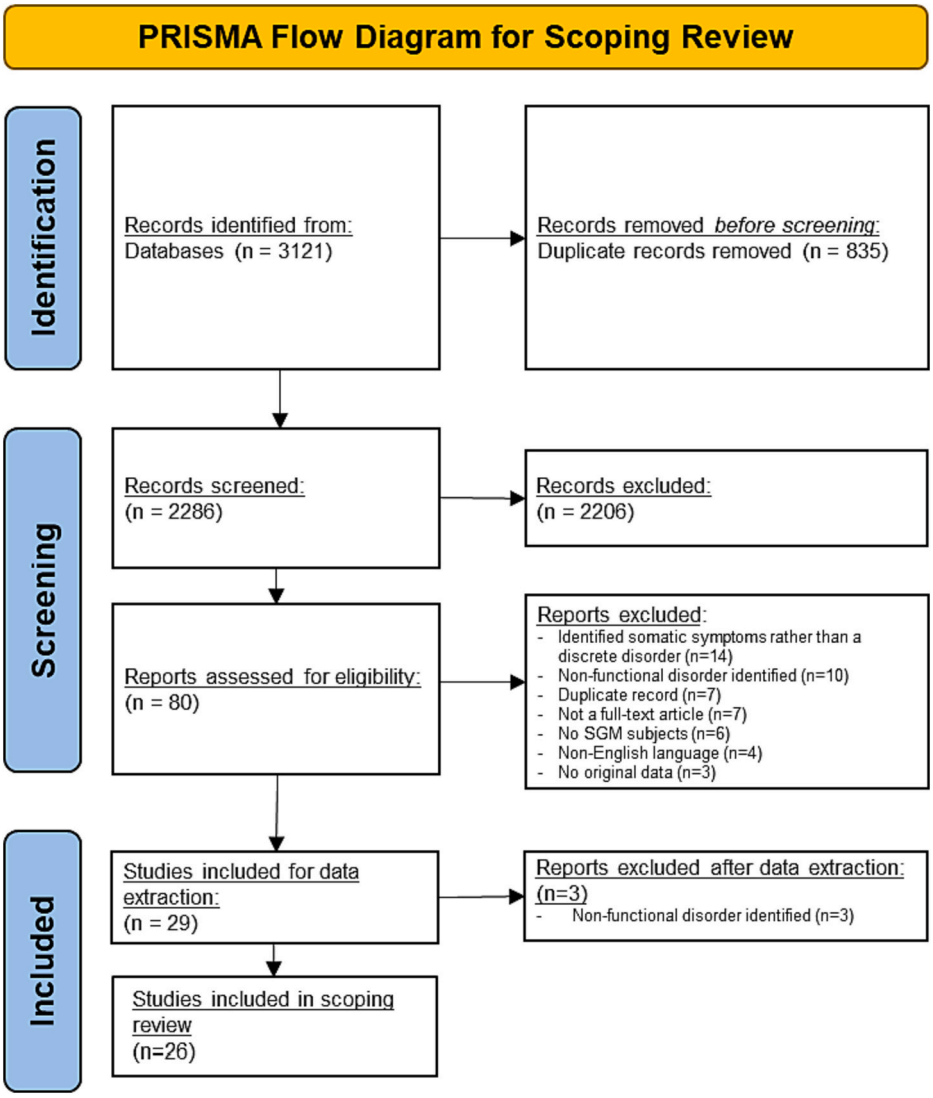

Fig. 1. PRISMA flow diagram: Adapted from PRISMA 2020 Reporting Guidelines [41]. SGM: Sexual and Gender Minority.

4. Functional neurological (conversion) disorder

Most studies on FND were case reports/series (7/8, 88%). No population studies compared the prevalence of SGM individuals to matched cisgender, heterosexual cohorts, though a FND clinic-based cross-sectional study noted disproportionate representation of transgender patients (5/154, 3%) compared to Australian census data (<1%) [51].

Among seven case reports, age of onset was generally young, but ranged from 8 to 50 years (mean = 20, standard deviation = 14). Most studies described the experiences of sexual minority people without specifying gender identity; however, there was one case report of a transmasculine youth [65] and an adult reporting transfeminine identity [68]. Clinical presentations were often mixed and comprised diverse symptomatology including functional seizures (n = 2) [46,50], speech/swallowing dysfunction (n = 2) [49,65], hyperkinetic movement disorders (*n* = 1) [65], cognitive difficulties (n = 1) [61], dizziness (n = 1) [65], weakness (n = 1) [68], and tactile "pseudohallucinations" (*n* = 1) [59].

Diagnostic process varied considerably between case studies. Three studies referenced formal diagnostic criteria; 6/7 (86%) were published during the DSM-IV era (i.e., 1994–2013) [59,61,65]. One study did not describe prior diagnostic work-up [49], while two reported only non-specific negative findings on brain imaging (*n* = 1) [61] or general physical exam (n = 1) [59]. Another case report referred to unspecified electroencephalographic (EEG) studies and non-response to anti-epileptic drugs [46]. Three studies reported specific findings suggestive of an FND diagnosis, including negative intra-episodic video-electroencephalography (n = 1) [50], seizure semiology (n = 1) [65], and unilateral motor weakness demonstrating variability and a positive Hoover's sign [68].

Over half (4/7, 57%) of case studies described neuropsychiatric comorbidities including anxiety disorders (n = 1) [65], mood symptoms (n = 1) [61], obsessive-compulsive symptoms (*n* = 1) [65], cluster C personality traits (n = 1) [59], attention-deficit/hyperactivity disorder (n = 1) [65], and traumatic brain injury (n = 1) [68]. History of adverse childhood experiences were reported in two cases including physical abuse (*n* = 2) [46,49] and sexual abuse (n = 1) [46]. A postulated trigger (acute precipitant) occurring within three months of symptom onset or clinical presentation was identified in 5/7 (71%) case reports, including viral infection [61], academic stress [50], altercation with a peer [65], same-sex encounters [59,61], homophobic remarks by a parent [50], and the death of a parent [49]. Treatment modalities included discussion with a clinician about SGM identity (*n* = 4) [50,59,61,65], psychoanalytic therapy (*n* = 3) [46,49,56], psychotropic medication for comorbid conditions (n = 2) [59,65], as well as social gender transition with support from parents and a transgender psychologist (n = 1) [65].

Table 2
Study characteristics of eligible articles.

Country of Origin (Site of Recruitment)		Number of Studies (%) $n = 26$
Australia		1 (4)
Canada		2 (8)
Germany		1 (4)
India		2 (8)
Iran		1 (4)
Israel		1 (4)
Italy		1 (4)
Portugal		1 (4)
United Kingdom		5 (19)
United States		11 (42)
Year of Publication		
Pre-1979		4 (15)
1980–1989		2 (8)
1990–1999		2 (8)
2000–2009		4 (15)
2010–2019		4 (15)
2020–2022		10 (38)
Journal Type		
Mental Health		11 (42)
Internal Medicine		9 (34)
SGM Health		4 (15)
Neurology		2 (8)
Study Type		
Case Studies/Series		13 (50)
Case-Control		3 (12)
Cohort		3 (12)
Cross-Sectional		4 (15)
Other Qualitative Studies		3 (12)
Age of Onset		
0–9		1 (4)
10–19		6 (23)
20–29		3 (12)
30–39		1 (4)
Over 40		2 (8)
Not specifically reported for SGM people with FDs		13 (50)
Sexual Orientation		
Lesbian Only		1 (4)
Gay Men Only		4 (15)
Gay and Lesbian		1 (4)
Same-Gender Attraction or Sexual Behavior		7 (27)
Other or Multiple Sexual Orientations		5 (19)
Not Reported		8 (31)
Gender Identity		
Transmasculine (TM)		1 (4)
Transfeminine (TF)		1 (4)
Transgender (not further specified)		3 (12)
Both TM and TF		2 (8)
Gender Inclusive/Multiple Gender Identities		6 (23)
Cisgender Only		13 (50)
Race/Ethnicity		
Exclusively Black		1 (4)
Majority White (>50%)		4 (15)
Majority from Racially Diverse Communities (>50%)[a]		1 (4)
Non-Western Country of Origin		4 (15)
Not Reported		12 (46)
Functional Disorder Diagnoses		
Functional Neurological (Conversion) Disorder		8 (31)
Functional Somatic Syndromes	Total[b]	10 (38)
	Fibromyalgia	8 (31)
	Chronic Fatigue Syndrome	3 (12)
	Irritable Bowel Syndrome	2 (8)
Somatic Symptom Disorder		5 (19)
Other		3 (12)

Racially diverse communities refer to any descriptor of race other than White or Caucasian. [a]Racially diverse was defined as any racial category other than "White". [b]Total article count includes the number of unique articles referring to functional somatic syndromes (FSS); three studies reporting multiple FSS among their participant samples were counted separately towards each disorder [49,50,53]. No intersex people were identified. SGM: sexual and gender minority; FD: functional disorder.

Table 3
Quality of evidence in scoping review.

	Level 5 Case Studies Expert Opinion	Level 4 Cross-Sectional Case Series	Level 3 Case-Control Retrospective Cohort	Level 2 Prospective Cohort Well-designed non-randomized controlled trial	Level 1 Randomized Controlled-Trial Systematic reviews with meta-analyses
FND	7	1	–	–	–
FSS[a]	1	2	4	–	–
FM	1	2	2		
IBS		-	1		
CFS		-	1		
SSD	3	1	1	–	–
Other FDs	1	1	1	–	–
Total	12	5	6	–	–

Adapted from Oxford Centre for Evidence-based Medicine's Levels of Evidence per JAMA Network Guidelines [44].
[a] Three qualitative studies reported chronic fatigue syndrome (CFS), irritable bowel syndrome (IBS), and fibromyalgia (FM) diagnoses but did not reflect any of the above methodologies and were not included in Table 3.

In all but one patient, symptoms resolved at the time of last reported follow-up. The remaining patient continued to present with episodic limb weakness before loss to follow-up, receiving an initial diagnosis of FND before factitious behavior was suspected as the primary driver of both the patient's neurological symptoms and reported gender dysphoria, though comorbid FND and gender dysphoria remained diagnostic possibilities in this complex case [68].

5. Functional somatic syndromes

Ten total articles reported FSS among SGM people, most of which were population studies including four cross-sectional studies [4,48,55,57], three case-control studies [60,64], and three retrospective cohort studies [70]. Gender minority people were included in 60% (6/10) of studies [4,48,55,62,66,70].

Fibromyalgia was the most common reported diagnosis among FSS studies (8/10, 80%). The largest study analyzed International Classification of Disease 9th edition (ICD-9) codes assigned to Medicare beneficiaries, reporting a higher prevalence of fibromyalgia among transgender (2773/7454, 37.2%) compared to cisgender individuals (8,101,213/39136299, 20.7%). However, ICD-9 codes for transexualism and gender identity disorder may not be reliable to identify the full spectrum of transgender patients [4]. Similarly, a retrospective cohort study of patients at a transgender health clinic found the prevalence of fibromyalgia to be 14.8% (17/115) based on American College of Rheumatology (ACR) criteria, compared to 2.5% prevalence in the Israeli general population [70]. Prevalence was higher among transmasculine (14/72, 19%) versus transfeminine individuals (3/43, 7%). In this study, no significant change in fibromyalgia prevalence was found before and after at least a year or more of gender-affirming hormone therapy.

Two cross-sectional studies included SGM individuals with fibromyalgia but either did not report specific numbers [48] or aggregated the diagnosis with other rheumatologic conditions (e.g., gout) precluding separate analysis [57].

A single case report described an adult male with ACR-diagnosed fibromyalgia and symptom onset during a period of increased internal conflict over male-male sexual fantasies [52]. His condition gradually improved after disclosure of his conflict to providers and eventual engagement in his desired sexual behaviors.

Three qualitative studies examined the lived experience of SGM

people with chronic pain or chronic illnesses [62,63,66], including individuals with fibromyalgia, IBS, and CFS. One study that tabulated participant diagnoses found that CFS was the fifth most common condition (15/190, 7.9%) reported among a predominantly cisgender sexual minority sample (179/190, 93.1%) [62].

Regarding CFS and IBS diagnoses, two case-control studies based on rigorous case definitions reported no significant group differences in the proportion of sexual minority versus heterosexual people with these diagnoses [60,64], though these studies had other primary aims. No group-level demographic or clinical data were available in either study.

6. Somatic symptom disorder/somatoform disorders

The literature on SSD/SD included two cross-sectional studies and three case reports. One cross-sectional study analyzed ICD-10 coding in a proprietary database of outpatient practice data in Germany [55], finding a significantly higher prevalence of ICD-10 somatoform disorder in age-matched transgender (52/535, 9.7%) versus cisgender (31/535, 5.8%) samples ($p = 0.02$). The other cross-sectional study examined mental health outcomes among the Hijra [54], a heterogenous gender nonbinary group in South Asia, reporting 3% (6/50) of individuals met criteria for ICD-10 SD based on a general health screening questionnaire.

Three case studies described presentations consistent with SSD. One case report described an assigned-female, nonbinary adolescent who was diagnosed with SSD based on DSM-5 criteria [67]. This patient's symptoms improved gradually after disclosure of gender dysphoria to the medical team, family education, and subsequent social gender affirmation. The second described two young gay men with multiple somatic complaints who attributed these to acquired immunodeficiency syndrome (AIDS) despite negative HIV testing: their symptoms improved with AIDS education and treatment of comorbid depression and anxiety by medications and cognitive therapy [45]. The third case study described two adult men with same-gender sexual behavior who similarly presented with somatic symptoms attributed to AIDS, recovering with medication treatment of comorbid psychiatric disorders and psychotherapy focused on their health concerns [69].

7. Other FDs

Two studies reported broader diagnostic categories that likely included but did not exclusively consist of individuals with FND, FSS, or SSD/SD [47,58].

A case series of 6 transfeminine and 2 transmasculine youth with gender dysphoria and chronic pain included 5/8 (63%) individuals with diagnoses of “amplified pain syndrome,” [58] a transdiagnostic category subsuming juvenile fibromyalgia as well as other central pain disorders [71,72]. Patients received multidisciplinary pain management, behavioral health referrals for comorbid depression and anxiety, as well as gender clinic referrals, with mean improvement in pain scores.

A 1949 study on psychological projective testing included an unreported number of sexual minority people in a sample of patients diagnosed with hysteria, which likely referred to a range of putative medically unexplained symptoms beyond FND (e.g. “mild skin rashes”) [47].

Lastly, a third study described a case of “hysterical somnambulism” [56] with episodes of nocturnal fugue-like wandering more consistent with a DSM-5 dissociative disorder rather than FND [73]. The patient improved during psychoanalytic therapy, during which his male-male sexual attraction arose as a topic but not an exclusive focus.

8. Discussion

This scoping review revealed limited data on the epidemiology and clinical characteristics of FND and FSS among SGM people. The overall literature was small and of low methodological quality, consisting mostly of case reports and cross-sectional studies (Table 3). In addition, the nature of available evidence and gaps in knowledge differed among disorders.

For FND, while no cross-sectional studies provided data on prevalence among samples of SGM people, the case literature revealed important areas for methodological development and investigation in future studies. Most articles were published prior to the DSM-5 era shift towards FND as a diagnosis of inclusion based on characteristic examination signs and semiological features [73]. Accordingly, only a minority of studies referenced specific and reliable laboratory findings (i.e., video-EEG), while a single study reported positive neurological exam findings demonstrating inconsistency with recognized neurological disorders [68]. Increased clinical and research collaboration between neurologists and psychiatrists may help improve systematic clinical description of FND among SGM people, which may be supported by more robust professional education on SGM health and FND in both fields [74,75]. Future studies should also apply current diagnostic standards and reference consensus quality standards such as the CARE guidelines for case reports [76]. Within the existing literature, several themes merit examination for generalizability in observational studies, including early age of onset (mean = 20 years) compared to the general population (i.e., third and fourth decades of life) [77], as well as development and improvement of symptoms in proximity to SGM-related stressors and therapeutic interventions in a subset of cases [50,59,61,65]. In these case studies, SGM-related stressors included fear of disclosure and perceived rejection of SGM identity. SGM-related therapeutic interventions included disclosure of an SGM identity, treatment with SGM-affirming healthcare, and increasing access to affirming psychosocial support. Early age of onset has also been found in certain FDs during specific, contextual stressors, such as functional tic-like behaviors during the COVID-19 pandemic [78].

For FSS and SSD/SD, while there were more observational studies providing data on disease prevalence, few studies described group-level demographic and clinical data as well as longitudinal follow-up to assess clinical trajectory. Fibromyalgia and SSD/SD were better represented in the literature than IBS and CFS, for which little information was available. Similar to FND, more research is needed that applies updated diagnostic criteria. For example, studies are needed that examine SSD according to DSM-5 criteria, since this may represent a more severe spectrum of illness than its ICD-10 counterpart [79]. Interestingly, most observational studies focused on samples including transgender people, which was surprising given the general underrepresentation of gender minority people in health sciences research [7]. Moreover, several studies suggested an increased prevalence of fibromyalgia and SSD/SD in transgender people [4,55,70], including one cohort study that also reported a higher prevalence in transmasculine compared to transfeminine individuals [70]. Further studies using community-based samples are needed to further assess prevalence findings in gender minority people, as well as to assess if similar trends exist among cisgender, sexual minority people. Pediatric age of onset [58,67] as well as the role of SGM-related stressors and therapeutic interventions [52,67] also emerged as themes among case studies of FSS, SSD, and other FDs, suggesting areas for hypothesis development and evaluation in future observational studies.

Outpatient clinics specialized in FDs or SGM health may be ideal settings for rigorous observational studies, which should engage SGM community participation in research aims and design. Inpatient hospital settings also represent an important point of engagement given the often acute onset of functional neurological symptoms, including in pediatric populations [33]. On a population level, ICD coding analyses in large healthcare databases are one promising methodology for studying the epidemiology of FDs, though researchers should acknowledge the complexities of using disease-oriented ICD classifications as a proxy for gender identity [80].

Across the literature as a whole, other limitations include lack of standardized collection of SGM identity data and reporting of basic demographic data. Studies variously defined SGM identity by sexual

behavior [52], disorder-based ICD coding [4], and self-identification [48], limiting cross-study comparison. In addition, most studies conflated gender and sex assigned at birth, constraining the identification of themes related to gender minority people [77]. Among studies that did specify gender identity separately, not all distinguished transfeminine, transmasculine, and gender nonbinary identities, which may obscure epidemiological and clinical heterogeneity within gender minority communities. None of the studies identified intersex people, who remain an underrepresented population in health disparities research broadly [81]. The use of a two-step method that inquires about sex assigned at birth and gender identity sequentially may help minimize sex-gender conflation [82]; however, this method should be updated from established iterations to include intersex individuals. Lastly, data on race/ethnicity, socioeconomic indicators, relationship status, and disability status were variably reported for SGM people with FDs despite complex relationships to disease risk and outcome in several FDs [29,83,84], as well as studies describing increased frequency of somatic symptoms in racial minority youth without formal diagnosis of SSD/SD [85]. The systematic inclusion of detailed demographic data will enable research at the intersection of multiple disadvantaged identities.

Regarding the scoping review approach itself, several challenges emerged during the literature search and screening process related to the complex nosology of FDs. While the role of dissociation in FND and its nosological status among the dissociative disorders is an important area of debate, dissociation-related terms were mostly excluded from the search strategy given the broad clinical phenomena encompassed, which vary in direct relevance to FND and have been surveyed partially in previous literature reviews [86,87]. Controlled vocabulary related to the included term "psychogenic non-epileptic seizures" did query "dissociative seizure" references, a specific subtype of FND. Additionally, methodological challenges also emerged regarding chronic unspecified and regional pain terms, which were partially included in the original search strategy (e.g., low back pain) to identify articles for screening based on whether authors provided additional clinical information to suggest FSS, SSD, or BDD criterion were met (e.g., "not fully explained by any medically known reasons"per ICD-10 [12], or disproportionate concern per DSM-V[11] and ICD-11 [88]). Nonetheless, chronic regional pain and dissociative disorder terminology with particularly strong connotations to FDs can be considered for inclusion in future systematic literature surveys, particularly as research on FDs in SGM communities hopefully accumulates over time.

Lastly, several articles were retained for data extraction despite potential non-FD diagnoses due to subtle diagnostic distinctions (e.g., functional overlay on structural disease [39], suspected factitious disorder or malingering) requiring study team review. Three articles were eventually excluded while a complex report of suspected factitious disorder was ultimately included given the authors' assessment that consciously feigned behavior may have coexisted with FND on a "continuum" of self-awareness. Likewise, despite variable diagnostic practice across studies, eligible articles were categorized based on authors' diagnoses due to historical changes in the nosology of FDs and difficulty re-evaluating diagnoses based on limited case data. Given that the term "hysteria" encompassed a broader range of clinical phenomena than FND proper according to the DSM-5, cases that did not specify "conversion hysteria" were reviewed for their consistency with modern definitions; both were ultimately included among the "other FD" category [47,56]. On the other hand, a case of "pseudohallucinations" was appropriately categorized as FND by then-current DSM-IV criteria [89], which included hallucinations as a sensory conversion symptom.

9. Conclusion

A methodologically rigorous scoping review revealed limited data on FDs among SGM people. In studies providing prevalence data, several suggested increased prevalence of fibromyalgia and SSD/SD in gender minority people, supporting the need for more large-scale population-based research across FDs and SGM communities.

Declaration of Competing Interest

All authors have completed the ICMJE Unified Competing Interest form. The following authors have no disclosures to report: Dr. Fusunyan, Mr. Stave, Student Dr. Roldán, and Dr. Maschi. Dr. Lerario has served as plaintiff expert witness for Weiss Law, PC and receives consultancy payments regarding transgender neurological health care from medical colleges and universities within the US. Dr. Keuroghlian reports receiving textbook royalties from McGraw Hill. Dr. Turban reports receiving textbook royalties from Springer Nature and expert witness payments from The American Civil Liberties Union and Lambda Legal. He has received a pilot research award for general psychiatry residents from The American Academy of Child & Adolescent Psychiatry and its industry donors (Arbor & Pfizer) and a research fellowship from The Sorensen Foundation. Dr. Perez receives royalties from Springer for a functional movement disorder textbook, honoraria for continuing medical education lectures on functional neurological disorder, is a paid associate editor of *Brain and Behavior*, and receives funding from the National Institutes of Health and Sidney R. Baer Jr. Foundation unrelated to this work. Dr. Rosendale receives research funding from the American Academy of Neurology and National Institutes of Health StrokeNet Fellowship. She receives royalties from McGraw Hill for authorship of a chapter in Current Medical Diagnosis and Treatment 2022 and 2023.

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Appendix A. Supplementary data

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