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Pediatric Somatic and Psychiatric Hospital Contacts in Denmark: A National Overview of Risk Factors, Admissions, and Mortality

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ABSTRACT

Objectives: Prior studies have identified comorbidity between pediatric somatic and psychiatric diseases within specific diagnostic groups. However, population-level data on these associations and their impact on mortality and morbidity are limited. This study aimed to examine these associations in the Danish pediatric population.

Methods: We conducted a national cohort study using Danish register data, including 1,413,177 children and adolescents from 2019 to 2023. We assessed background factors, mortality, and hospital contacts across three patient groups: somatic-only, psychiatric-only, and somatic-psychiatric. A new-user design classified patients as somatic-only or psychiatric-only if they had no hospital contacts in the preceding 12 months. Patients with subsequent contacts for the other condition were reclassified into the somatic-psychiatric group.

Results: Most individuals were included in the somatic-only group ($n = 532{,}324$), with fewer in the psychiatric-only group ($n = 21{,}501$) or somatic-psychiatric group ($n = 23{,}108$). Psychiatric patients were more often boys and from lower socioeconomic backgrounds. Somatic hospital contacts often involved less severe symptoms. In contrast, psychiatric contacts involved specific diagnoses, including suicide attempts. Pediatric patients with both conditions had a higher 3-year readmission risk (12.1%, 95% CI: 11.6%–12.6%) compared to somatic-only patients (9.4%, 95% CI: 9.3%–9.5%), and longer average hospital stays (6.32 vs. 1.97 h). Psychiatric patients also had significantly higher all-cause mortality.

Conclusion: Somatic hospital contacts were more common, but children with psychiatric conditions faced significantly higher mortality and morbidity. These findings are relevant amid rising pediatric psychiatric diagnoses and recent Danish policy to integrate psychiatric and somatic care. Further research is needed to replicate these findings and inform optimal resource allocation for pediatric psychiatric care.

1 | Introduction

For decades, we have known that psychiatric disorders are associated with greater somatic morbidity and mortality in adults, and approaches to integrate somatic and psychiatric health care have been requested [1]. Focusing on specific psychiatric disease entities and the risk of subsequent somatic disease, prior pediatric studies found autism spectrum disorders and autistic traits to be associated with higher rates of somatic morbidity [2]. Also, children and adolescents with ADHD appear to have more

Summary

- Significant outcomes
  - Higher mortality in pediatric patients with psychiatric disease compared with pediatric patients with somatic hospitals contacts only.
  - Higher morbidity in pediatric patients with psychiatric disease.
  - Lower socioeconomic status in pediatric patients with psychiatric disease.
- Limitations
  - The present study was limited to the period of 2019–2023.
  - The present study was only based on data from the high-income setting of Denmark and have to be replicated in other settings.

somatic disease than the background population [3–5]. Pediatric restless legs syndrome appears to increase the risk of somatic and neuropsychiatric comorbidity [6], and youth with depression have higher rates of somatic disease and death [7]. In addition, a population-based study from Sweden found greater somatic comorbidity in general in children and adolescents with an ICD-10 diagnosis of any psychiatric disorder [8]. Another population-based pediatric study from Canada supported the observation of a much greater risk of somatic disease in individuals with psychiatric diagnoses [9]. On the other hand, the risk of subsequent psychiatric disease may also be higher in individuals with the presentation of chronic somatic disease in childhood. For example, pediatric inflammatory bowel disease has been associated with more psychiatric disease [10]. Pediatric epilepsy has been found to be associated with psychiatric comorbidity in 58.8%, and neurodevelopmental comorbidity in 94.3% of cases [11]. A study from the USA found that children with asthma, type 1 diabetes mellitus, type 2 diabetes mellitus, or ADHD had higher odds of being discharged from the hospital with a comorbid mood or anxiety disorder compared with other children discharged from the hospital [12]. And a recent cross-national study involving data from 40 countries found that one-third to almost two-thirds of somatic patients also suffered from a mental disorder [13]. Despite the presence of these population-based studies, most previous studies have examined specific psychiatric or somatic conditions in isolation, limiting their ability to capture broader comorbidity patterns. These approaches may not fully reflect how psychiatric and somatic issues interact in the general pediatric population. Further population-level studies are therefore warranted to provide a more comprehensive understanding of these associations and to inform service planning within integrated care systems.

Familial predisposition is known to be a strong predictor of psychiatric disease [14, 15], however environmental factors clearly also influence the risk. Although unexplained increases in pediatric psychiatric diagnoses and psychotropic drug use have been observed globally [16], including in Europe and the Nordic countries [17], pediatric studies on the association between somatic and psychiatric diseases are scarce. Integrating mental health into primary health care has been a WHO priority since 2008 [18]. Recently, it was decided to integrate psychiatry into somatic medicine in Denmark [19, 20], underscoring the timely need for comprehensive data to guide these efforts. The patterns of comorbidity between somatic and psychiatric conditions in children is critical to guide pediatric health planning and support the development of integrated care models that address both mental and physical health needs.

To improve our understanding of this important interplay between pediatric somatic and psychiatric hospital contacts in Denmark, and to provide estimates of subsequent mortality and health service utilization across somatic patients, psychiatric patients, and patients with both psychiatric *and* somatic disease, this national population-based study aimed to comprehensively describe all Danish children and adolescents (aged 0–17) years from 2019 to 2023. Specifically, we examined the number of pediatric patients with somatic and/or psychiatric conditions by biological sex, age group, patient type (inpatient or outpatient), hospital level (tertiary or secondary), region of residence, maternal education level, and country of origin. Subsequent risks of mortality and hospital admission were estimated by groups of patients with somatic disease only, psychiatric disease only, or both. Further, numbers on supplementary hospitalization outcomes were presented.

1.1 | Aims of the Study

This study aimed to provide a national overview of pediatric somatic and psychiatric hospital contacts in Denmark from 2019 to 2023. It examined the distribution of demographic and socioeconomic factors across patient groups and assessed associated risks of mortality and hospital readmission. By comparing children with somatic, psychiatric, or both types of conditions, the study highlights vulnerable subgroups and informs future healthcare planning.

2 | Methods

2.1 | Study Population

This study utilized data from the Danish National Patient Registry (DNPR) [21] and the Danish Civil Registration System (CRS) [22]. The study period ranged from April 1, 2019, to December 31, 2023, with the start date chosen to coincide with the introduction of DNPR3, the latest version of the DNPR.

The study population included all children and adolescents born in Denmark aged 0–17 years during the study period. Individuals were excluded if they had turned 18, emigrated, or died before April 1, 2019. Individuals who turned 18, emigrated, or died during the study period were censored at that time. Administrative censoring was imposed on December 31, 2023.

The study considered hospital contacts in the DNPR occurring during the study period (April 1, 2019 to December 31, 2023). For individuals born after April 1, 2019, only contacts prior to emigration or death were included. Contacts with a main diagnosis of uncomplicated births (ICD-10 codes: Z308, Z38, Z392) or neonatal hearing screenings (Z135C) were excluded, as these were not considered indicative of morbidity. Inpatient and outpatient contacts were identified according to the cluster proxy approach of Buchardt et al. [23]. Using this approach, hospital contacts were categorized based on factors such as contact type (acute or elective), duration (in hours), and whether the contact

extended overnight. Acute outpatient contacts (emergency room visits) were excluded. The decision to exclude contacts based on specific ICD-10 codes, as well as emergency room visits, was made to reduce noise in the data and ensure the analysis focused on hospital contacts more likely to reflect actual health-related events indicative of long-term morbidity.

The process of identifying eligible patients and contacts is illustrated in Figure 2 in the Results section.

2.2 | Comparator Groups

Patients were categorized into one of three groups based on their hospital contacts:

1. *Somatic-only patients*: Individuals with a hospital contact related to somatic conditions only.
2. *Psychiatric-only patients*: Individuals with a hospital contact for psychiatric conditions only, that is, those with at least one diagnosis from the F chapter of the ICD-10 system (International Classification of Diseases).
3. *Somatic-psychiatric patients*: Individuals with at least one somatic and at least one psychiatric contact within 1 year.

The patient inclusion followed a new-user design, with a 12-month washout period [24]. Thus, hospital data from 1 year before the study period were also used to identify the look-back. Individuals were classified as somatic-only patients at their index date, that is, the time they first met the somatic patient criteria, provided they had not met the same criteria in the 12 months prior. The same rule applied to the psychiatric-only group. A lag time for the risk window of 12 months was introduced. Thus, patients could be assigned to the somatic-psychiatric group if they had a contact for the other condition within 12 months after the index date. The study design is illustrated in Figure 1.

2.3 | Descriptive Statistics

The distributions of a variety of baseline variables were presented by patient groups as explained in the section above. The baseline variables included biological sex, age group (0, 1–5, 6–11, and 12–16 years) at time zero, patient type (inpatient or outpatient), hospital at index treatment (Aalborg, Aarhus, Odense, Copenhagen, or other), region of residence (North, Central, Southern, Zealand, or Capital), maternal education level (secondary or lower, short-cycle or bachelor's degree, and master's or doctoral degree), and country of origin (Danish or not). Further, the most frequent somatic and psychiatric diagnoses were listed.

2.4 | Follow-Up

The primary analysis followed an intention-to-treat (ITT) approach, categorizing patients based on their initial hospital contact type(s) within the study period, including a lag time of 12 months. Patients were analyzed based on their initial patient group status at this point in time, regardless of later events. For example, if a patient was first categorized as having a somatic condition and only developed a psychiatric condition more than 12 months after this index date, the patient would be analyzed as somatic-only throughout the follow-up. On the other hand, if the patient was diagnosed with a psychiatric condition less than 12 months after the index date, the patient would be analyzed as somatic-psychiatric. We selected the ITT approach over as-treated alternatives to avoid reclassifying patients after the index date plus 12-month lag time. This ensured consistent allocation throughout the follow-up and enabled more interpretable estimates on the absolute risk scale, as time at risk could be clearly attributed to the initial patient group.

As illustrated in Figure 1, we grouped children and adolescents as either somatic or psychiatric patients based on their first hospital contact and reclassified them as somatic-psychiatric patients if they later had a hospital contact for the other condition within 12 months.

2.5 | Outcomes

The primary analyses involved risk of mortality and hospital admission defined as time to first inpatient during the risk window [23]. Further, the occurrences of the following outcomes were presented descriptively: repeated all-cause admissions, somatic admissions, psychiatric admissions, outpatient contacts, total hospital contacts, and number of days admitted to hospital.

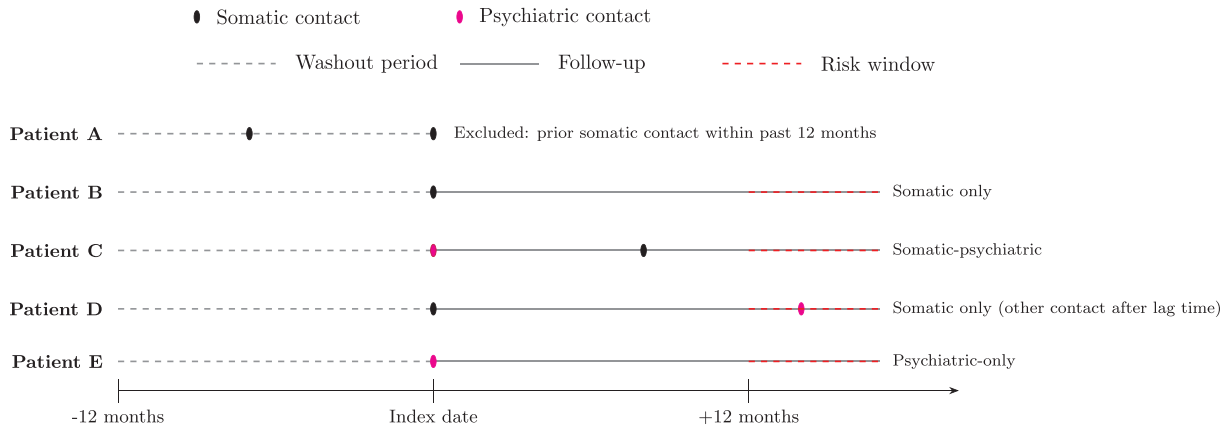

FIGURE 1 | Illustration of the criteria for inclusion, patient group allocation, and follow-up.

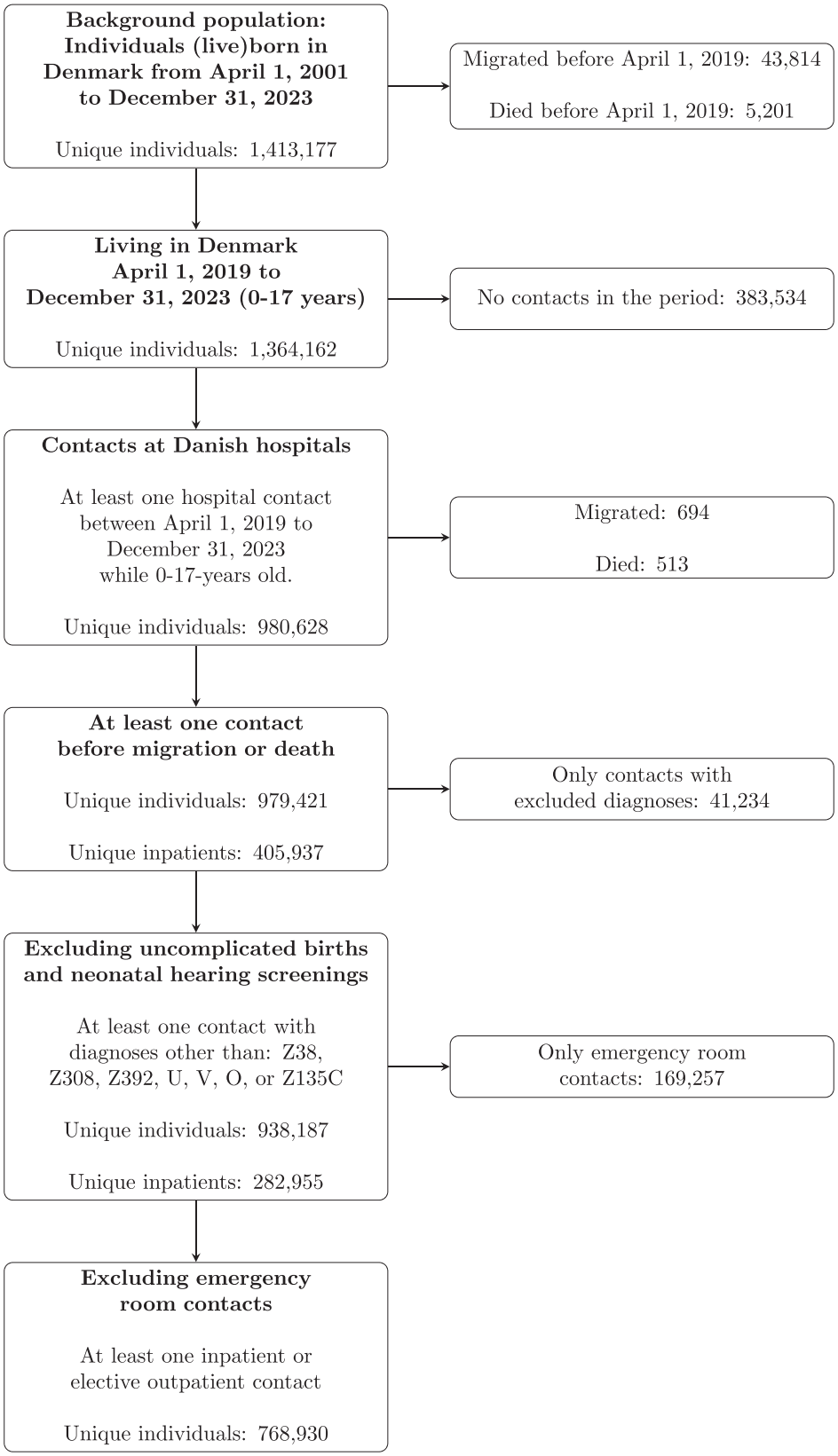

FIGURE 2 | Flowchart showing how the patients eligible for the study were identified.

2.6 | Statistics

The outcome risks (mortality and time to admission) were presented as standardized risk curves using the methodology of Syriopoulou et al. [25]. Separate curves were calculated for each of the three treatment groups (somatic, psychiatric, or both) based on a Weibull model for the cumulative hazard function on the log scale as a function of the baseline covariates

mentioned in the above subsection on descriptive statistics [26]. This approach was chosen a priori as a standard parametric model offering flexibility in the shape of the hazard function. Missing values of the two variables region of residence and country of origin were imputed based on the distribution of the observed values to avoid restricting the analysis to complete cases only. The covariate definitions are detailed in the Supporting Information.

The risk estimates were evaluated in a grid of follow-up times (every month) measured as time since becoming a new patient plus 12 months, that is, time since index date plus lag time for the risk window.

After initiating the formal analyses of time to admission, the component for the competing risk of death was omitted due to a small number of deaths in the psychiatric and somatic-psychiatric groups. Given the negligible influence of mortality on this outcome, this omission is unlikely to substantially affect the risk estimates.

Data management and statistical analyses were performed using StataNow/SE 18.5.

2.7 | Sensitivity Analyses

To assess the robustness of the results, two sensitivity analyses were conducted for the primary analysis. The first sensitivity analysis excluded patients not included through physical hospital contacts (i.e., omitting outside and virtual contacts), whereas the second sensitivity analysis excluded patients not included through public hospital contacts. The sensitivity analyses are detailed in the Supporting Information (Table S1 and Figure S1).

3 | Results

The total number of eligible patients between 0 and 17 years of age with somatic and/or psychiatric diagnoses was 768,930 (Figure 2). The number of new patients during the study period was 715,956, of which 576,933 had 12 months of follow-up after the index date and were included in the final analysis (Figure 3). The included individuals contributed a total of 1,075,958 patient-years of risk time. Of this, the somatic patient group accounted for 995,823 patient-years (mean of 1.9 years per patient), the psychiatric group for 41,001 patient-years (mean 1.9 years), and the somatic-psychiatric group for 39,135 years (mean 1.7 years).

The baseline characteristics of the three patient groups are presented in Table 1. Male sex was overrepresented in all three groups, with an even higher proportion in the psychiatric group. The majority of somatic patients were from younger age groups, while psychiatric patients were mainly adolescents. Only a few individuals were included as psychiatric inpatients. As indicated by lower maternal educational level, psychiatric disease was associated with lower socioeconomic status. Further, a higher proportion of psychiatric patients were of Danish origin. The tertiary hospital distribution was similar across patient groups; however, a larger number of psychiatric patients were enrolled in Odense. Patient enrollment was generally consistent across the study years, except for 2019, which saw a higher number of psychiatric patients. Since psychiatric and somatic diagnoses, which were separate in the old Patient Register version (DNPR2), were collected in the new version (DNPR3), the difference may be attributable to initial suboptimal registration of psychiatric contacts, resulting in a higher number of new users in 2019.

The ten most frequent main diagnoses at the index contact are presented for the somatic and psychiatric patient groups in the

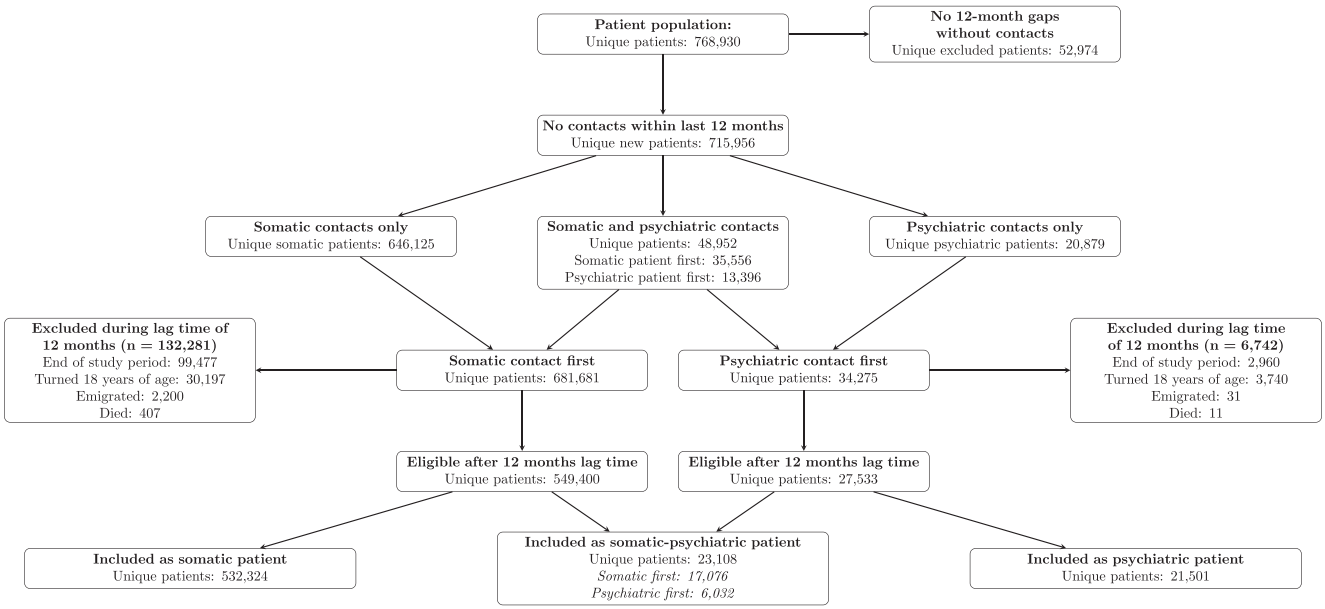

FIGURE 3 | Flowchart of the identification of new patients eligible after 12 months lag time.

TABLE 1 | Baseline characteristics by patient groups, somatic ($n = 532,324$), psychiatric ($n = 21,501$), and somatic-psychiatric ($n = 23,108$).

Baseline characteristics	Somatic, *n* (%)	Psychiatric, *n* (%)	Somatic-psychiatric, *n* (%)
Sex			
Female	252,477 (47.4)	9033 (42.0)	10,060 (43.5)
Male	279,847 (52.6)	12,468 (58.0)	13,048 (56.5)
Age group (years)			
0	168,796 (31.7)	97 (0.5)	485 (2.1)
1–5	98,005 (18.4)	2043 (9.5)	2680 (11.6)
6–11	132,264 (24.8)	7316 (34.0)	8517 (36.9)
12–16	133,259 (25.0)	12,045 (56.0)	11,426 (49.4)
Patient type			
Inpatient	90,687 (17.0)	1380 (6.4)	2140 (9.3)
Outpatient	441,637 (83.0)	20,121 (93.6)	20,968 (90.7)
Index hospital			
Rigshospitalet	44,128 (8.3)	125 (0.6)	626 (2.7)
Odense University Hospital	47,317 (8.9)	1436 (6.7)	1705 (7.4)
Aarhus University Hospital	42,510 (8.0)	156 (0.7)	586 (2.5)
Aalborg University Hospital	34,216 (6.4)	97 (0.5)	478 (2.1)
Other	364,153 (68.4)	19,687 (91.6)	19,713 (85.3)
Maternal education level			
Secondary or lower	220,503 (41.4)	11,546 (53.7)	12,092 (52.3)
Short-cycle or bachelor's degree	197,654 (37.1)	7065 (32.9)	7839 (33.9)
Master's or doctoral degree	109,278 (20.5)	2756 (12.8)	3022 (13.1)
Not elsewhere classified or missing	4889 (0.9)	134 (0.6)	155 (0.7)
Danish origin			
Yes	477,140 (89.6)	[a] (95)	[a] (94)
No	54,433 (10.2)	[a] (5)	[a] (6)
Missing	751 (0.1)	[a] (0)	[a] (0)
Region of residence			
Capital Region of Denmark	167,669 (31.5)	[a] (32)	[a] (29)
Region of Southern Denmark	120,271 (22.6)	[a] (18)	[a] (23)
Central Denmark Region	125,638 (23.6)	[a] (20)	[a] (27)
North Denmark Region	50,448 (9.5)	[a] (9)	[a] (9)
Region Zealand	67,732 (12.7)	[a] (20)	[a] (12)
Missing	566 (0.1)	[a] (0)	[a] (0)
Index year			
2019	147,070 (27.6)	10,131 (47.1)	6436 (27.9)
2020	151,665 (28.5)	4253 (19.8)	6617 (28.6)
2021	126,102 (23.7)	4198 (19.5)	5440 (23.5)
2022	107,487 (20.2)	2919 (13.6)	4615 (20.0)

[a]Numbers masked (percentages rounded) to avoid identifiability of a small number of individuals (< 3).

Supporting Information (Table S2). It can be seen that, while the diagnoses for index somatic hospital contacts generally reflected screenings for potential disease or milder conditions, the psychiatric diagnoses were much more specific and severe.

3.1 | Mortality

The number of deaths during the risk window in each patient group was 90 in the somatic group, 6 in the psychiatric group, and 10 in the somatic-psychiatric group. The low number of events prevented convergence of the full survival model. However, it was possible to fit a model with age group as the only covariate. This model compared only the two original groups, somatic and psychiatric patients, followed from the index date until the end of the follow-up period, without introducing any lag time during which patients could transition to the somatic-psychiatric group. The age-standardized mortality risk curves are shown in Figure 4. Notably, we found that the risk of all-cause mortality was significantly higher in the group of pediatric patients with psychiatric disease.

3.2 | Hospital Contacts

The number of hospitalization outcomes is presented by patient group in Table 2. The absolute number of all-cause admissions was 33,472 in the somatic patient group, 2311 in the psychiatric patient group, and 2288 in the somatic-psychiatric patient group. Generally, the individuals with psychiatric disease, or both somatic and psychiatric conditions, were observed to experience more hospital contacts and admissions, as well as longer stays, apparently due to higher rates of subsequent psychiatric admissions.

The adjusted risks of admission by patient group are illustrated in Figure 5. The ten most frequent main diagnoses at the admission contact are presented for the somatic and psychiatric patient groups in the Supporting Information (Table S3). The patient type variable (inpatient or outpatient at index date) was omitted from the working hazards model since it caused unstable estimates. Also, the component for the competing risk of death was omitted due to the low absolute number of events in the psychiatric and the somatic-psychiatric groups, as explained above.

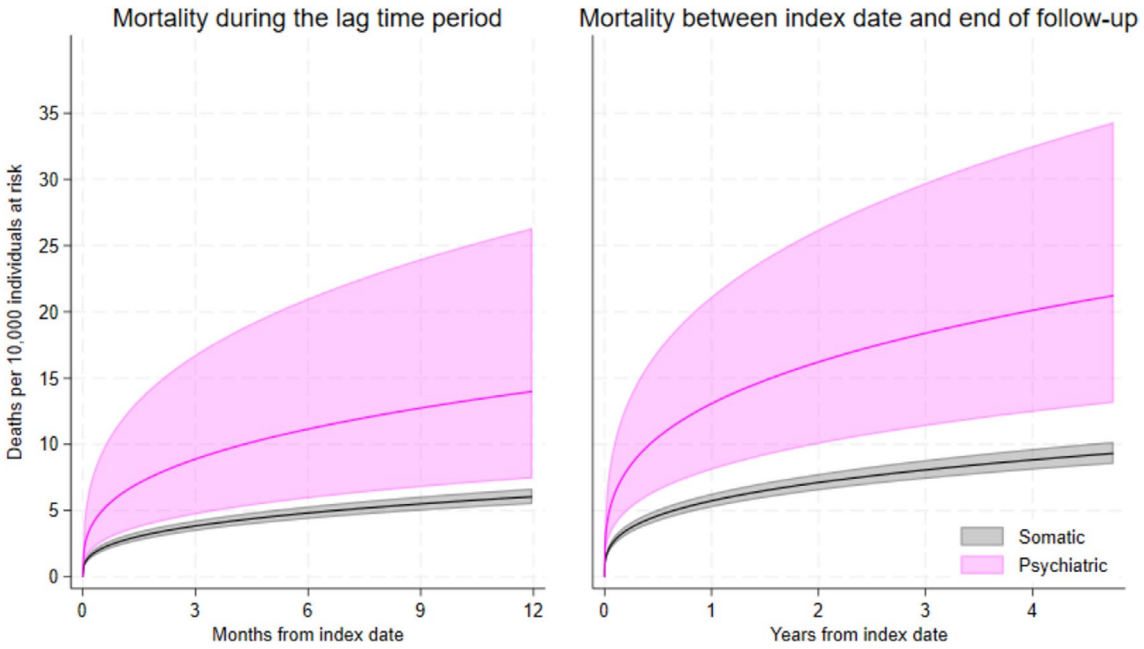

FIGURE 4 | Age-standardized risk of death by patient group (somatic or psychiatric) with 95% confidence intervals.

TABLE 2 | Mean number of outcome events by patient groups, somatic ($n = 532,324$), psychiatric ($n = 21,501$), and somatic-psychiatric ($n = 23,108$).

Outcomes, mean (SD)	Somatic	Psychiatric	Somatic-psychiatric
Number of all-cause admissions	0.07 (0.26)	0.11 (0.33)	0.10 (0.32)
Number of hours admitted	1.97 (36.32)	6.08 (84.80)	6.32 (92.79)
Number of somatic admissions	0.06 (0.26)	0.07 (0.27)	0.06 (0.25)
Number of psychiatric admissions	0.00 (0.06)	0.04 (0.21)	0.04 (0.21)
Number of outpatient contacts	2.32 (6.46)	8.77 (14.57)	8.51 (13.53)
Number of total hospital contacts	2.39 (6.53)	8.89 (14.65)	8.61 (13.60)

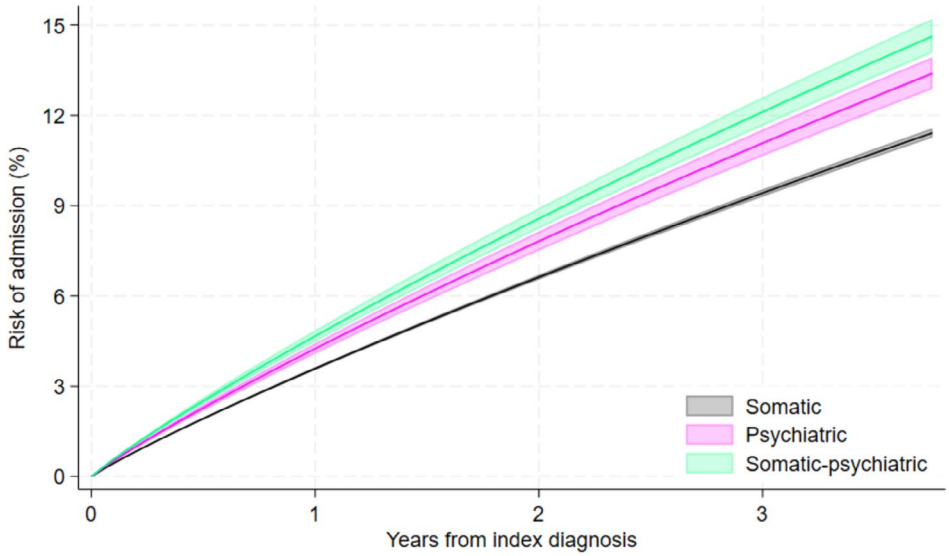

FIGURE 5 | Standardized risk of admission by patient group (somatic, psychiatric, and somatic-psychiatric) with 95% confidence intervals.

Figure 5 shows, for example, that after 3 years of follow-up, the estimated cumulative risk of admission in the somatic patient group was 9.4% (95% confidence interval [CI]: 9.3%–9.5%). In comparison, the risk in the psychiatric group was 11.1% (95% CI: 10.6%–11.5%), and 12.1% (95% CI: 11.6%–12.6%) in the somatic-psychiatric group. Thus, the absolute risk difference between the psychiatric and somatic patient groups was 1.7 percentage points (95% CI: 1.2–2.1). The difference between the somatic-psychiatric and the somatic patient groups was 2.7 percentage points (95% CI: 2.2–3.2). The risk difference curves are presented in the Supporting Information (Figure S2).

3.3 | Sensitivity Analyses

Most index contacts ($n = 528{,}470$) were physical (i.e., neither virtual nor outside contacts), accounting for 91.6% overall, with similar distributions across patient groups: 91.6% in the somatic group, 90.3% in the psychiatric group, and 91.8% in the somatic-psychiatric group. Similarly, the majority of patients were enrolled at public hospitals, totaling 97.5% overall, 97.6% in the somatic group, 95.8% in the psychiatric group, and 96.8% in the somatic-psychiatric group. The risk of admission by patient groups restricted to these sub-populations was similar to that of the primary analysis (Supporting Information, Figure S1).

4 | Discussion

This national, population-based cohort study included all 1,413,177 children and adolescents in Denmark from 2019 to 2023. It compared the distribution of background factors, mortality rates, and hospital contacts across three groups of pediatric patients: those with only somatic hospital contacts, those with only psychiatric hospital contacts, and those with both. Despite Denmark's high-income, high-equity healthcare setting, we identified significant differences between the groups. Notably, the minority group of pediatric patients with psychiatric conditions exhibited higher mortality risks, longer admissions, and greater risk of subsequent hospital contacts, including the risk of re-admission. While prior studies, summarized in the introduction, focused on associations between specific somatic and psychiatric disease entities [3–7, 10, 11], our study is the first to demonstrate such pronounced disparities in morbidity and mortality at the population level across pediatric hospital contacts.

Within the group of pediatric patients with psychiatric disease, a higher proportion were boys, and these patients were more likely to come from lower socioeconomic backgrounds. Additionally, the hospital diagnosis codes revealed that somatic hospital contacts were often checks for less severe symptoms, while psychiatric hospital contacts had more specific diagnoses, including a notably high ranking of subsequent suicide attempts. Finally, we found that within the group of pediatric patients with psychiatric disease, a lower proportion were individuals of non-Danish origin. We speculate that these findings may reflect the more selective use of psychiatric hospital contacts, primarily for those with more severe conditions. We further speculate if this could even indicate a pattern of underdiagnosis and undertreatment of psychiatric conditions, particularly in individuals of non-Danish origin.

We chose the hospital setting and focused on the outcomes of mortality and re-hospitalization to begin with the most severe outcomes. Future studies should broaden the scope to include health service utilization in primary care, such as prescriptions and contacts with general practitioners and other medical specialists, to gain a more comprehensive understanding. Further, our findings highlight the importance of integrated care models within pediatric somatic settings, which can facilitate early identification and management of psychiatric comorbidities, ultimately improving overall patient outcomes.

A key strength of this study is its use of comprehensive national registers covering the entire Danish population [21]. The new-user design further enhanced the replicability and comparability of our results by ensuring that all enrolled patients had a similar recent history of hospital contacts, specifically, no contacts during the 12 months prior to inclusion. To address the risk of immortal time bias, we introduced a lag period for the classification of patients into the somatic-psychiatric group, which again

secured the replicability of the results. Finally, the application of standardized risk curves allowed for the interpretation of outcomes on the absolute risk scale while adjusting for important confounders such as age.

However, certain limitations must be recognized. First, the study was based on a relatively short follow-up period. This study period was chosen to ensure the use of recent data and to maintain consistency by relying on the most recent version of the Patient Register, which was introduced during 2019 [23]. Second, although fortunate from a general perspective, the low number of mortality events limited our ability to include a lag time and the third comparator group, patients with both somatic and psychiatric hospital contacts, in the mortality analysis.

Finally, the use of an intention-to-treat (ITT) approach in patient follow-up did not account for changes in patient status or recurrent hospitalizations over time. The ITT approach enabled more straightforward interpretation of estimates on the absolute risk scales; however, allowing patients to transition between exposure groups over time could provide additional information and reduce misclassification. These aspects represent important areas for future research. Our analytical approach was conservative, prioritizing the robustness of the findings over the inclusion of additional individuals; hence, future studies should explore the implementation of time-varying exposure models to offer valuable insights into the impact of changing patient conditions on subsequent health outcomes.

In conclusion, while this large national, population-based cohort study found somatic hospital contacts made up the largest proportion of pediatric hospital contacts in Denmark, children and adolescents with psychiatric disease exhibited significantly higher mortality and morbidity. Given that Denmark is a high-income, high-equity society with a relatively well-functioning healthcare system, the higher risks of re-admission and mortality observed among pediatric patients with psychiatric disorders may be even more pronounced in less resourced countries. In terms of generalizability, the fact that Denmark is a high-income country with equal access to health care implies that the threshold for hospitalization may be lower than in other settings. However, the results of this study suggest that pediatric psychiatric hospitalization thresholds are higher compared to somatic hospitalization, possibly due to limited local psychiatric inpatient capacity. On the other hand, our finding of a much higher mortality rate among Danish pediatric patients with psychiatric diseases suggests that the mortality risk could be even higher in settings with less access to healthcare.

These aspects warrant replication in other settings. Moreover, our findings highlight the urgency of structural changes, including closer integration between somatic and psychiatric pediatric care [18, 19], increased allocation of resources to pediatric psychiatric care, improved access to psychiatric care, and strengthened follow-up for pediatric patients with psychiatric conditions.

Author Contributions

L.G.S. drafted and revised the manuscript. L.G.S. was responsible for the study concept. A.J. was responsible for the study design and analyzed the data. Both authors were responsible for the interpretation of findings. Both authors critically reviewed and approved the final manuscript.

Acknowledgments

The authors have nothing to report.

Ethics Statement

This is observational register-based study requires no ethical approval under Danish Law.

Consent

The study was based on public routine data collections and required no patient contact.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from Statistics Denmark. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from https://www.dst.dk/en/TilSalg/data-til-forskning with the permission of Statistics Denmark.

Peer Review

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/acps.70036.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Data S1:** acps70036-sup-0001-DataS1.docx.