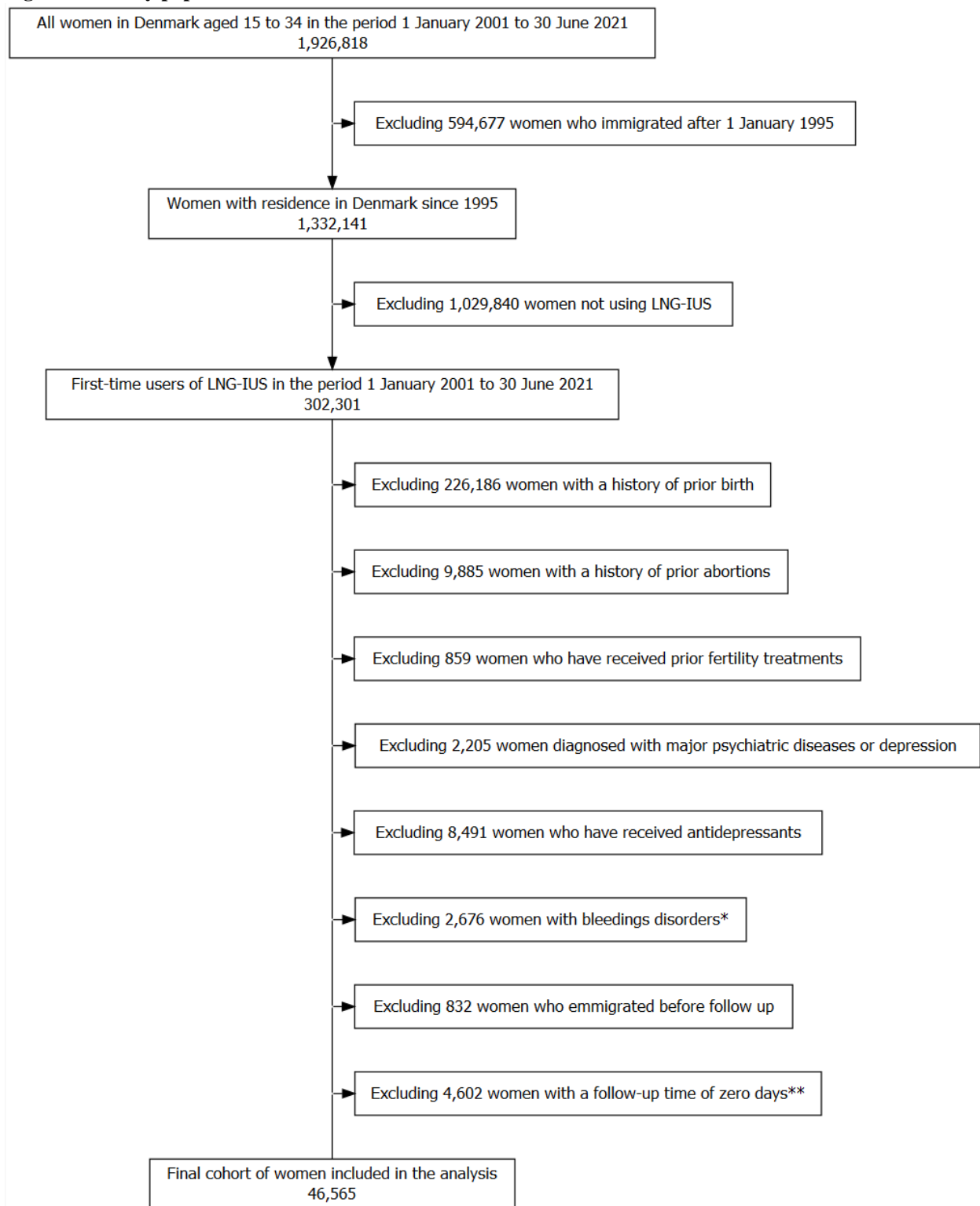


## Supplementary materiel

### Table of Contents

Figure S1: Study population flowchart .....	2
Table S1: Data sources and variable definitions.....	3
Table S2: Sensitivity analysis in the first year of prescription redemption. ....	4
Figure S2: Adjusted* incidence rate ratios of a first antidepressant use for first time users of the 13.5-mg low-dose LNG-IUS compared to 19.5-mg low-dose LNG-IUS. ....	5

**Figure S1: Study population flowchart**



\* Having been diagnosed with endometriosis, heavy menstrual bleeding, polyp, myoma or dysmenorrhoea, or prescribed iron supplements.

\*\* Follow-up time of zero days due to: entry at exit date, redeeming other hormonal contraception at entry or redeeming other hormonal contraception before their 15<sup>th</sup> birthday.

**Table S1: Data sources and variable definitions**

Variable	Data source	Period of availability	Classification	Definition
<i>Outcome &amp; Exposure</i>				
Antidepressant	The Danish Prescription Registry	1995-	ATC	N06A* except N06AX12
Hormonal contraception	The Danish Prescription Registry	1995-	ATC	Hormonal contraceptives: G03AA, G03AB, G03AC, G03HB01, G02BB01 LNG-IUS (brand names were used to distinguish between the 3 types): G02BA03
<b>Exclusion &amp; Censoring Criteria</b>				
Depression diagnoses	The Danish National Patient Registry Psychiatric	1994	ICD-10	F32-F339
	Central Research Registry	1995		
Major psychiatric diagnoses	The Danish National Patient Registry Psychiatric	1994	ICD-10	F0*, F30*, F31* F2*, F7*, F38-F39
	Central Research Registry	1995		
Endometriosis	The Danish National Patient Registry	1977	ICD-10, ICD-8	N80*, 6253*
Heavy menstrual bleeding	The Danish National Patient Registry	1995	ICD-10	DN92*
Polyp, Myoma	The Danish National Patient Registry	1995	ICD-10	N84.0 Polyp of corpus uteri D25 Leiomyoma of uterus
Dysmenorrhoea	The Danish National Patient Registry	1995	ICD-10	N94.3-6
Abortion	The Danish National Patient Registry	1995	ICD-10	DO0*
Iron supplement	The Danish Prescription Registry	1995	ATC	B03A*
Infertility treatment	The Danish Prescription Registry	1995	ATC	G03G*
Parity	The Danish Medical Birth Registry	1973-2018	Each observation in the Danish Medical Birth Registry	
	The Danish National Patient Registry	2019-2021	ICD10	O8*
Death or emigration	The Civil registration system	1968-	Status as dead or emigrated	

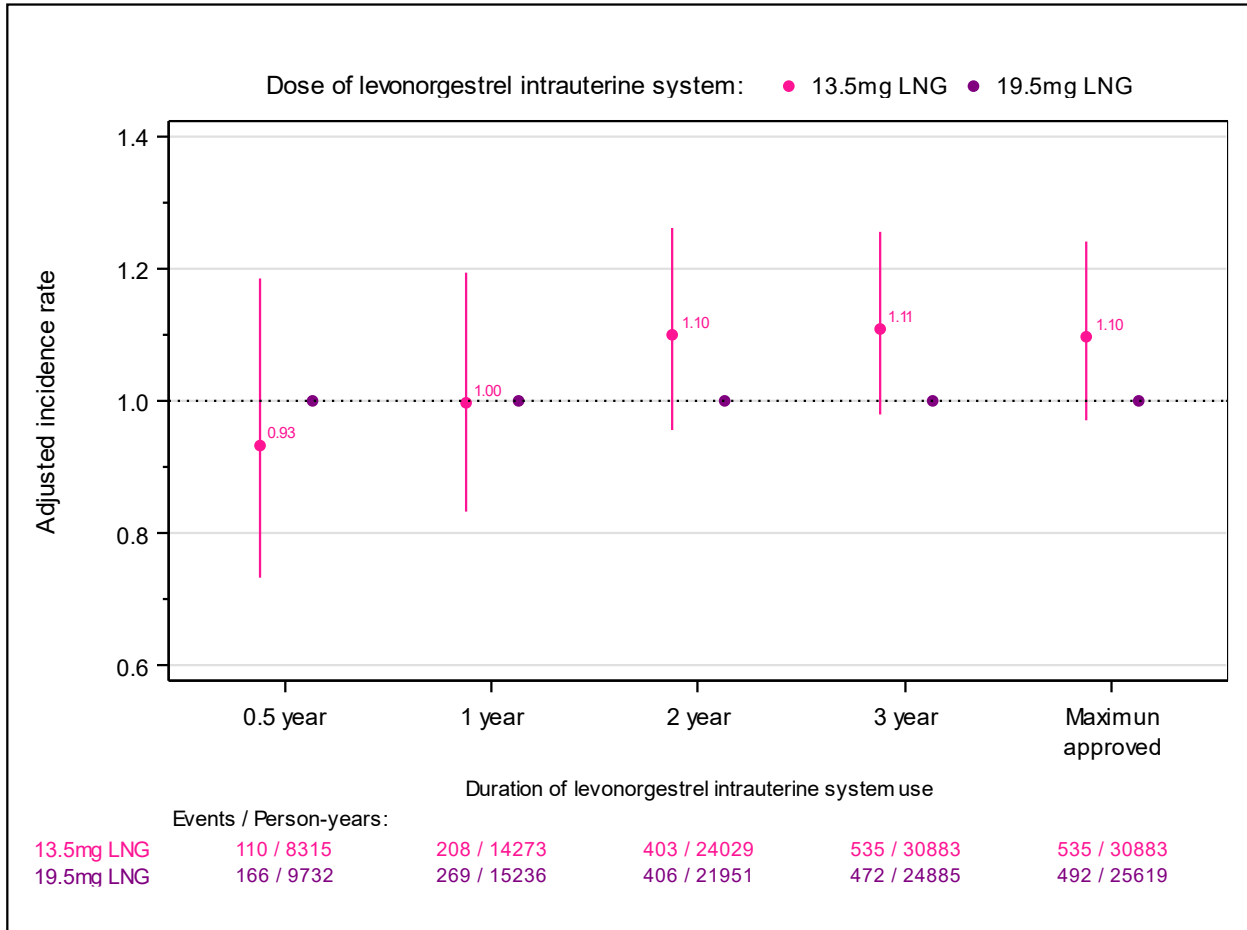
ATC: The Anatomical Therapeutic Chemical Classification System, ICD8: International Classification of Diseases, Revision 8, ICD10: International Classification of Diseases, Revision 10.

**Table S2: Sensitivity analysis in the first year of prescription redemption.**

Analysis	Type of hormonal LNG-IUS	Women N	Person-Year	Events	Adjusted* Incidence Rate Ratio (95% CI)
Age 15-19 years	13.5-mg	5,240	3,865	65	0.62 (0.43-0.89)
	19.5-mg	6,444	4,017	78	0.60 (0.42-0.85)
	52-mg	2,419	1,583	53	Reference
Additionally adjusted for use of other hormonal contraception before initiation of LNG-IUS	13.5-mg	15,994	14,273	208	0.68 (0.56-0.82)
	19.5-mg	20,659	15,236	269	0.67 (0.56-0.81)
	52-mg	9,897	8,359	203	Reference
LNG-IUS users exclusively purchasing their high-dose LNG-IUS prior to launch of the low-dose type	13.5-mg	15,994	14,273	208	0.56 (0.44-0.72)
	19.5-mg	20,659	15,236	269	0.57 (0.45-0.71)
	52-mg	3,632	3,142	99	Reference
Period 2017-2021	13.5-mg	8,713	7,354	103	0.75 (0.54-1.04)
	19.5-mg	20,545	15,145	262	0.83 (0.62-1.11)
	52-mg	3,774	2,944	56	Reference
Period 2014-2021	13.5-mg	15,935	14,225	205	0.73 (0.58-0.93)
	19.5-mg	20,618	15,204	267	0.73 (0.58-0.92)
	52-mg	6,248	5,205	104	Reference
Outcome defined as two prescriptions of antidepressive in a two-year period	13.5-mg	15,994	14,285	171	0.67 (0.54-0.83)
	19.5-mg	20,660	15,256	212	0.67 (0.55-0.83)
	52-mg	9,898	8,376	163	Reference
Outcome defined as three prescriptions of antidepressive in a two-year period	13.5-mg	15,995	14,296	146	0.64 (0.51-0.80)
	19.5-mg	20,661	15,268	181	0.68 (0.55-0.85)
	52-mg	9,899	8,384	146	Reference
Quasi Poisson To compensate for overdispersion	13.5-mg	15,994	14,273	208	0.66 (0.45-0.95)
	19.5-mg	20,659	15,236	269	0.66 (0.46-0.94)
	52-mg	9,897	8,359	203	Reference

\* Adjusted for: age (1-year intervals), calendar time (1-year intervals), and educational status (elementary school, Secondary school, skilled worker, Theoretical education).

**Figure S2: Adjusted\* incidence rate ratios of a first antidepressant use for first time users of the 13.5-mg low-dose LNG-IUS compared to 19.5-mg low-dose LNG-IUS.**



\*Adjusted for: age (1-year intervals), calendar time (1-year intervals), and educational status (elementary school, Secondary school, skilled worker, Theoretical education).