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TABLE S1. Articles on hormonal contraception and suicide

Author Year	Study design	Expo- sure	Reference	Population	Age	Events	Persons-years	Results Risk of suicide
Vessey¹ 1989 England	Cohort	OC	Diaphragm or IUD	Married women Visiting family planning clinics	25–39*	16	272,512 1968–1986	1.1 (0.3–3.6) No significant difference
Beral² 1999 Britain	Cohort	OC	Never use	Women from general practices	29*	55	853,571 1968–1993	1.5 (0.8–2.3) No significant difference
Colditz³ 1994 USA	Cohort	OC	Never use	Nurses Health study	30–55*	114	1,300,000 1976–1988	1.32 (0.87–1.98) No significant difference
Hannafor⁴ 2010 UK	Cohort	OC	Never use	Married women or living as married	29*	67	1,197,181 1968–2007	1.26 (0.73–2.18) No significant difference
Charlton⁵ 2014 USA	Cohort	OC	Never use	Nurses Health study	30–55	241	3.6 mil	1.41 (1.05–1.87) Significantly increased

OC=Oral contraceptives; IUD=Intrauterine device. *Mean age at recruitment.

1. Vessey MP, Villard-Mackintosh L, McPherson K, et al: Mortality among oral contraceptive users: 20 year follow up of women in a cohort study. *BMJ* 1989; 299:1487–1491.
2. Beral V, Hermon C, Kay C, Hannafor⁴ P, Darby S, Reeves G. Mortality associated with oral contraceptive use: 25 year follow up of cohort of 46 000 women from Royal College of General Practitioners' oral contraception study. *BMJ* 1999;318:96-100.
3. Colditz GA. Oral contraceptive use and mortality during 12 years of follow-up: the Nurses' Health Study. *Ann Intern Med.* 1994;120:821-6.
4. Hannafor⁴ PC, Iversen L, Macfarlane TV, Elliott AM, Angus V, Lee AJ. Mortality among contraceptive pill users: cohort evidence from Royal College of General Practitioners' Oral Contraception Study. *BMJ* 2010;340:c927.
5. Charlton BM, Rich-Edwards JW, Colditz GA, Missmer SA, Rosner BA, Hankinson SE, Speizer FE, Michels KB. Oral contraceptive use and mortality after 36 years of follow-up in the Nurses' Health Study: prospective cohort study. *BMJ* 2014;349:g6356

TABLE S2. Included groups of hormonal contraception and corresponding ATC codes

Hormonal contraception group[§]	ATC codes*
Combined products	
Oral	
20-50 µg EE	
Norethisterone	G03AA01, G03AA03, G03AA05, G03AB04
Levonorgestrel	G03AA07, G03AB03
Norgestimate	G03AA11
Desogestrel	G03AA09, G03AB05
Gestodene	G03AA10, G03AB06
Drospirenone	G03AA12
CPA	G03HB01
Natural estrogen	
Dienogest	G03AB
NOMAC	G03AA14
Non-oral	
Patch (norelgestromin)	G03AA13
Vaginal ring (etonogestrel)	G02BB01
Progestin-only products	
Oral	
All progestogen only pills	G03AC01, G03AC02, G03AC03, G03AC09
Non-oral	
Implant	G03AC08
LNG-IUS	G02BA03
MPA depot	G03DA02

[§] EE=ethinylestradiol; CPA=cyproterone acetate; LNG-IUS=levonorgestrel intrauterine system; NOMAC=nomegestrol acetate; MPA=medroxyprogesterone acetate.

* ATC=Anatomical Therapeutic Chemical classification.

TABLE S3. Included diagnoses of suicide an suicide attempt according to ICD-10

	Suicide	Suicide attempt	
8th revision		E9500 to E9599	
10th revision	X6001	X6010	X7310
	X6101	X6011	X7311
	X6201	X6110	X7410
	X6301	X6111	X7411
	X6401	X6210	X7510
	X6501	X6211	X7511
	X6601	X6310	X7610
	X6701	X6311	X7611
	X6801	X6410	X7710
	X6901	X6411	X7711
	X7001	X6510	X7810
	X7101	X6511	X7811
	X7201	X6610	X7910
	X7301	X6611	X7911
	X7401	X6710	X8010
	X7501	X6711	X8011
	X7601	X6810	X8110
	X7701	X6811	X8111
	X7801	X6910	X8210
	X7901	X6911	X8211
	X8001	X7010	X8310
	X8101	X7011	X8311
	X8201	X7110	X8320
	X8301	X7111	X8410
	X8320	X7210	X8411
	X8401	X7211	Z915A

TABLE S4. Included diagnoses of venous thromboses from ICD-8 and ICD-10

	ICD-8	ICD-10	Diagnose
Non pregnant	450	I260, I269	Pulmonary embolism
	438	I676	Sinus thrombosis
		I801	Thrombophlebitis in vena femoralis
	451.08	I802	Deep vein thrombosis in the legs
	451.00	I803	Unspecified deep vein thrombosis in the legs
		I808	Phlebitis a thrombophlebitis with other localization
		I808A	Phlebitis with other localization
		I808B	Thrombophlebitis with other localization
		I808D	Phlebitis et thrombophlebitis venae jugularis
	452	I819	Thrombosis of the portal vein
	453.02	I822	Thrombosis or embolism in the vena cava
		I823	Thrombosis or embolism in the vena renalis
		I828	Thrombosis or embolism in other designated veins
451.99	I829	Thrombosis or embolism in non-specified veins	
Pregnant		O087A	Phlebitis after extra-uterine pregnancy
		O087B	Phlebitis after molar pregnancy
		O087C	Phlebitis after abortion
		O087D	Thrombophlebitis after molar pregnancy
		O087E	Thrombophlebitis after extra-uterine pregnancy
		O087F	Thrombophlebitis after abortion
		O223	Phlebothrombosis profunda in graviditate
		O225	Thrombosis venae cerebri in graviditate
		O225A	Thrombosis sinuum venosum cerebri in graviditate
		O228	Venous complications of pregnancy, others
		O229	Venous complications of pregnancy without spec.
	671.01/02	O871	Thrombophlebitis profunda puerperalis
	671.03	O871A	Thrombophlebitis pelvis puerperalis
		O873	Thrombosis venae cerebri puerperalis
		O873A	Thrombosis sinuum venosum cerebri puerperalis
	671.08	O878	Venous complications in the puerperium, other
	671.09	O879	Venous complications in the puerperium without spec.
634.59, 673.09	O880	Embolia aëris obstetrica	
673.19	O881	Embolia fluidi amniotici	
673.99	O882	Embolia obstetrica	

FIGURE S1. Women fulfilling various inclusion and exclusion criteria

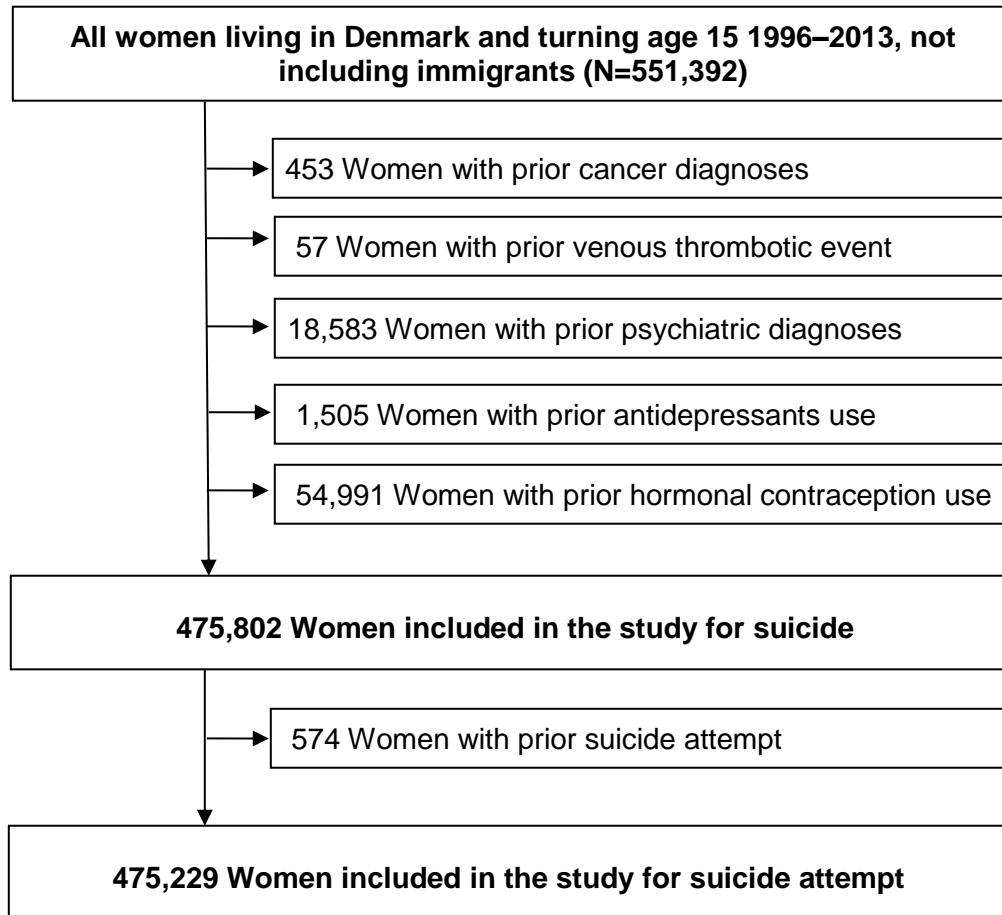


FIGURE S2. Lexis diagram: a cohort of women followed from age 15 through the period 1996–2013

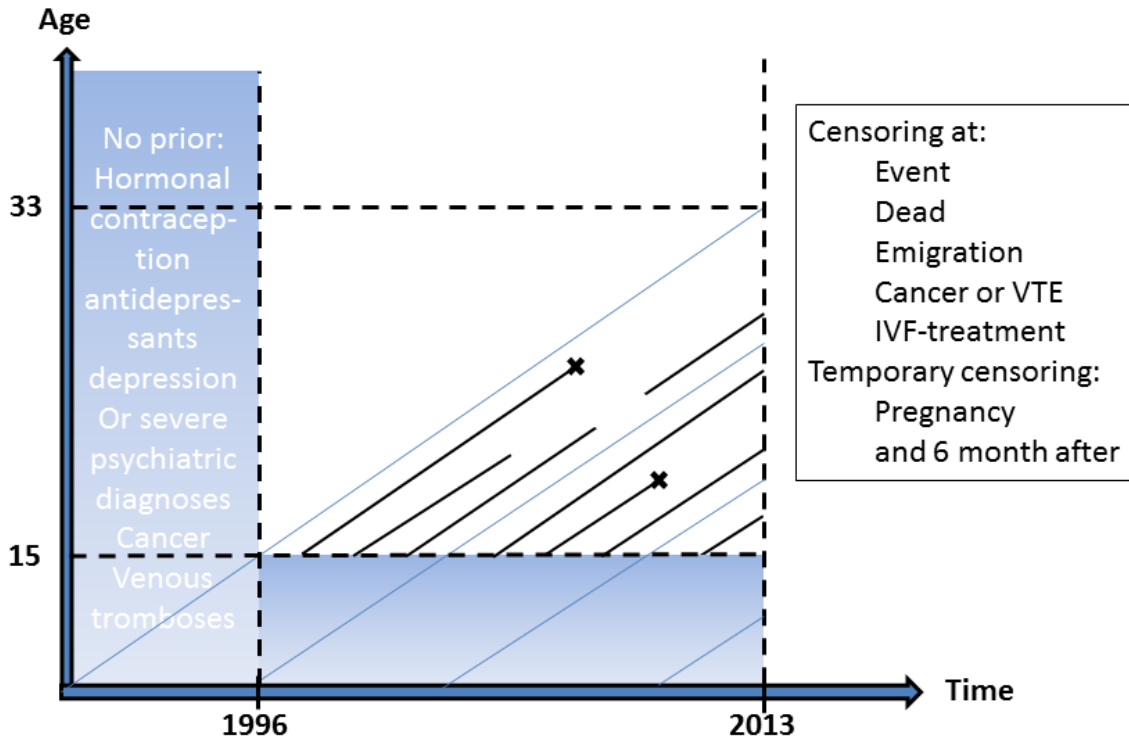


TABLE S5. Hazard ratio of a first suicide attempt according to use of different types of hormonal contraception

Type of hormonal contraception	Person Years	First suicide attempt	Hazard ratio ¹ [95% CL]	Hazard ratio ² [95% CL]
Never use	1,387,917	2,049	Reference	Reference
All hormonal contraceptive	2,127,374	3,898	1.82 [1.71-1.94]	1.97 [1.85-2.10]
Former use	405,527	1,052	3.76 [3.45-4.11]	3.40 [3.11-3.71]
Combined products				
Oral				
All oral combined	1,983,435	3,528	1.75 [1.64-1.87]	1.91 [1.79-2.03]
50 µg Ethinylestradiol				
Levonorgestrel	4,263	14	3.04 [1.80-5.15]	2.78 [1.64-4.71]
20-40 µg Ethinylestradiol				
Norethisterone	10,824	31	1.95 [1.37-2.79]	2.03 [1.42-2.90]
Levonorgestrel	175,565	267	1.63 [1.43-1.87]	1.81 [1.58-2.07]
Norgestimate	168,046	307	1.80 [1.59-2.04]	1.92 [1.70-2.18]
Desogestrel	477,965	855	1.74 [1.60-1.90]	1.89 [1.73-2.06]
Gestodene	782,645	1,398	1.73 [1.60-1.87]	1.88 [1.74-2.03]
Drospirenone	270,591	510	1.83 [1.65-2.03]	2.05 [1.85-2.27]
Cyproterone acetate	89,051	141	1.58 [1.33-1.88]	1.81 [1.52-2.16]
Non-oral				
Patch (norelgestromin)	5,302	19	3.90 [2.48-6.14]	3.28 [2.08-5.16]
Vaginal ring (etonogestrel)	49,269	84	2.34 [1.87-2.92]	2.58 [2.06-3.22]
Progestin-only products				
Oral				
All progestin only pills	38,965	62	2.16 [1.67-2.79]	2.29 [1.77-2.95]
Norethisterone	13,236	27	2.63 [1.79-3.85]	2.77 [1.89-4.05]
Desogestrel	25,580	35	1.89 [1.35-2.64]	2.01 [1.44-2.81]
Non-oral				
Implants	18,291	107	5.85 [4.80-7.13]	4.42 [3.63-5.39]
Levonorgestrel intrauterine system	25,789	38	3.26 [2.35-4.52]	2.86 [2.06-3.97]
Medroxyprogesterone acetate	6,322	60	10.2 [7.87-13.2]	6.52 [5.03-8.46]

1. Age as underlining time and adjusted for calendar year.

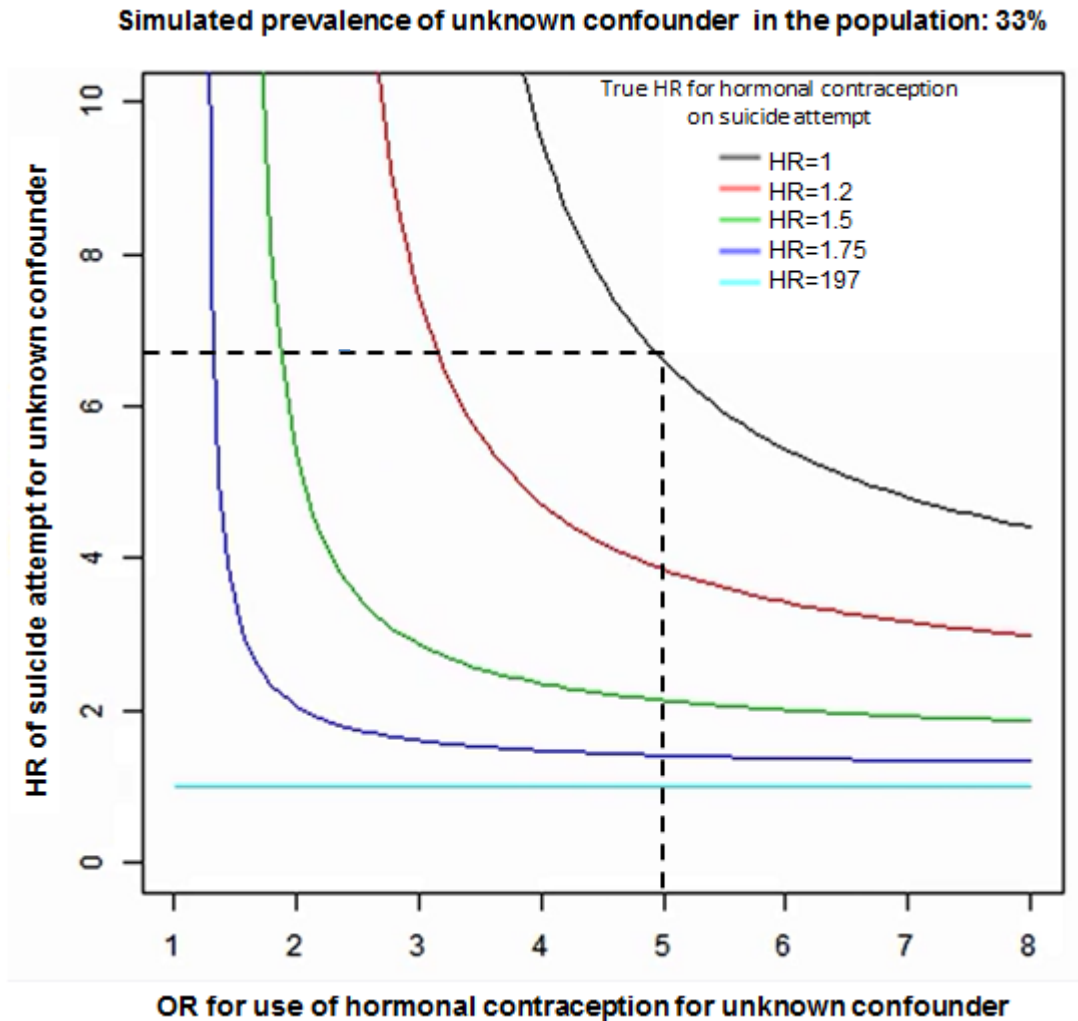
2. Additionally adjusted for education, polycystic ovary syndrome, and endometriosis.

TABLE S6. Hazard ratio of a first suicide attempt according to use of different types of hormonal contraception with 30-40 µg levonorgestrel as reference and of progestogen only pills with all oral combined as reference

Type of hormonal Contraception	Person Years	First suicide attempt	Hazard ratio ¹ [95% CL]	Hazard ratio ¹ [95% CL]
Combined products				
Oral				
All oral combined	1,983,435	3,528		Reference
50 µg Ethinylestradiol				
Levonorgestrel	4,263	14	1.53 [0.90-2.63]	
20-40 µg Ethinylestradiol				
Norethisterone	10824	31	1.12 [0.77-1.63]	
Levonorgestrel	175565	267	Reference	
Norgestimate	168046	307	1.06 [0.90-1.25]	
Desogestrel	477965	855	1.04 [0.91-1.20]	
Gestodene	782,645	1398	1.04 [0.91-1.18]	
Drospirenone	270,591	510	1.13 [0.97-1.31]	
Cyproterone acetate	89,051	141	1.00 [0.81-1.23]	
Non-oral				
Patch (norelgestromin)	5,302	19	1.81 [1.14-2.89]	
Vaginal ring (etonogestrel)	49,269	84	1.42 [1.11-1.82]	
Progestin-only products				
Oral				
All progestin only pills	38,965	62	.	1.20 [0.93-1.54]
Norethisterone	13,236	27	1.53 [1.03-2.27]	
Desogestrel	25,580	35	1.11 [0.78-1.58]	
Non-oral				
Implants	18,291	107	2.44 [1.95-3.06]	
Levonorgestrel intrauterine system	25,789	38	1.58 [1.12-2.23]	
Medroxyprogesterone acetate	6,322	60	3.60 [2.72-4.77]	

1. Age as underlining time and adjusted for calendar year, education, polycystic ovary syndrome, and endometriosis.

FIGURE S3. Quantitative bias analysis: Hazard ratio (HR) of suicide attempt as a function of the odds ratio (OR) of being a user of hormonal contraception, for prevalence of 33% of an unknown confounder in the population



The figure illustrates how much the calculated HR of originally 1.97 will change in case of an unidentified confounder that has a given OR for use of hormonal contraception (x-axis) and different hazard ratios of suicide attempt (y-axis). i.e, a factor implying a fivefold increase in use of hormonal contraception and have a HR of suicide of 6.8, will decrease the HR of suicide among users of hormonal contraception from the initial 1.97 to 1.0 (black curve).