Contraceptive Pills and Mortality

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DSC530

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<u>Abstract</u>

The objective of the project is to view the risk of mortality among women whom consume oral contraceptives, versus women who never used them.

- The Study: Royal College of General Practitioners' Oral Contraception RCGP study started in 1968.

- Data Supplied: The data for the study was supplied by the practitioners whom participated in the study, and the National Health Service central services.

- Amount: There were 1,200 general practices within the United Kingdom.

- Subjects: There were 46, 112 women whom underwent the 39 years in the study.

- Results: There were 1,747 women that died and never took the pills. There were 2,864 whom used the pills and died.

Hypothesis

- What was the association of women whom died and were taking the pills.?

- Were the woman whom consumed the contraceptive pills already at risk of dying before taking the pill?

- What are other factors that may have caused death while the women took the pills?
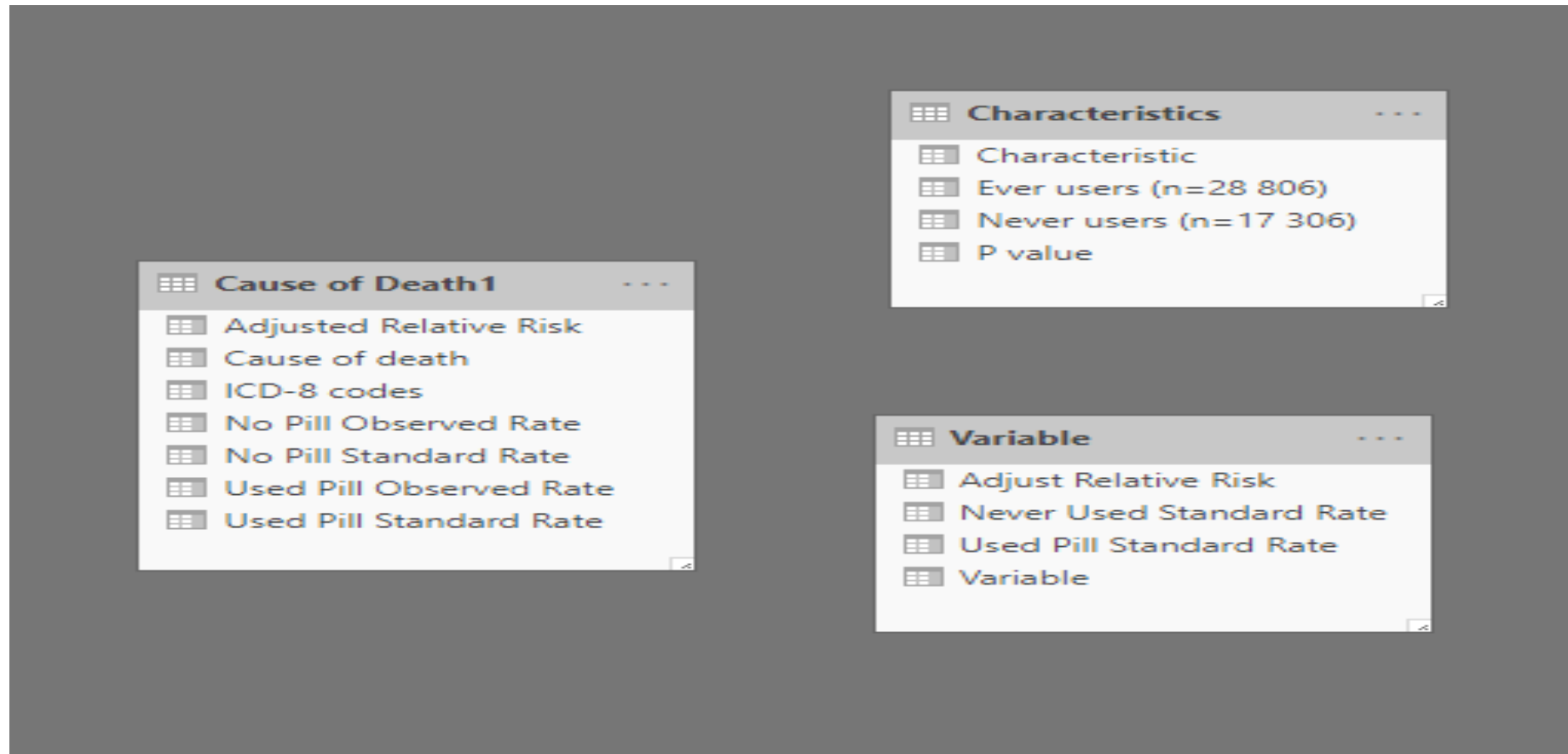
Left table (Raw):

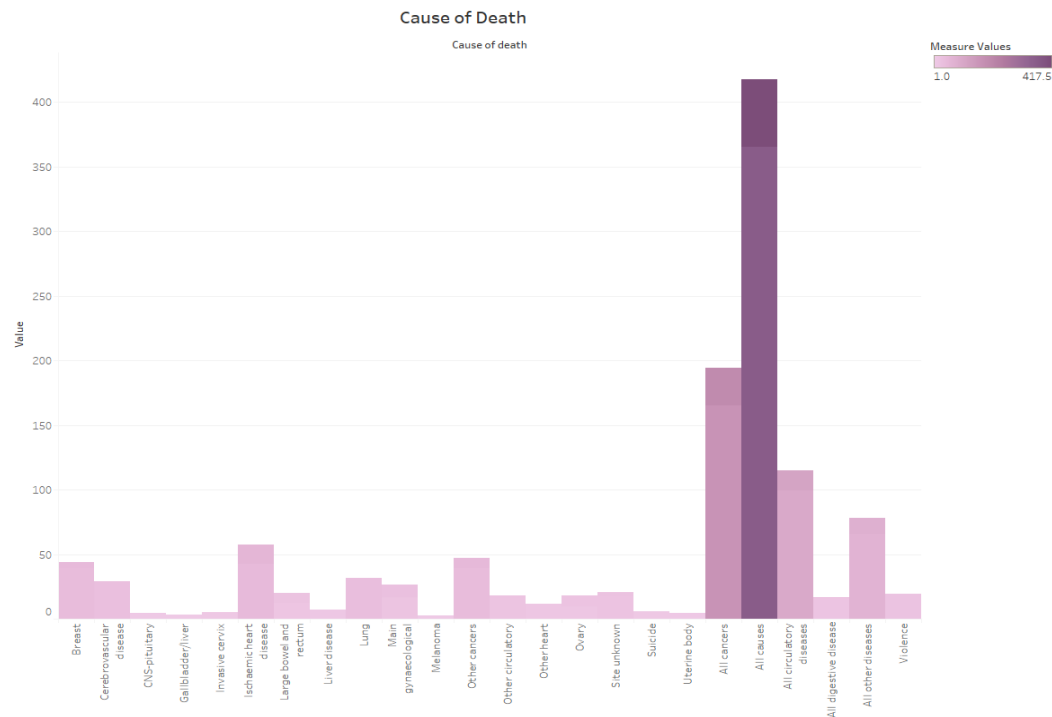| Cause of death	ICD-8 codes	Never users			Ever users		Adjusted relative risk† (95% CI)
		Observed rate (No)	Standardised rate*		Observed rate (No)	Standardised rate*	
All causes	000-999, all E codes	462.16 (1747)	417.45		349.62 (2864)	365.51	0.88 (0.82 to 0.93)
All cancers	140-209	205.29 (776)	194.55		160.16 (1312)	165.45	0.85 (0.78 to 0.93)
Large bowel and rectum	153-154	21.16 (80)	20.05		11.84 (97)	12.41	0.62 (0.46 to 0.83)
Gallbladder/liver	155-156	3.17 (12)	3.12		1.83 (15)	2.03	0.65 (0.30 to 1.39)
Lung	162	26.45 (100)	26.08		31.49 (258)	31.70	1.22 (0.96 to 1.53)
Melanoma	172	2.65 (10)	2.67		1.95 (16)	1.95	0.73 (0.33 to 1.61)
Breast	174	44.44 (168)	43.91		38.09 (312)	39.41	0.90 (0.74 to 1.08)
Invasive cervix	180	3.70 (14)	4.02		5.62 (46)	5.38	1.34 (0.74 to 2.44)
Uterine body	182	5.03 (19)	4.47		1.59 (13)	1.94	0.43 (0.21 to 0.88)
Ovary	183	19.84 (75)	18.04		9.16 (75)	9.47	0.53 (0.38 to 0.72)
Main gynaecological	180, 182, 183	28.57 (108)	26.51		16.36 (134)	16.80	0.63 (0.49 to 0.82)
CNS-pituitary	191, 1943	5.03 (19)	4.47		3.42 (28)	3.74	0.84 (0.47 to 1.50)
Site unknown	199	22.22 (84)	20.50		17.21 (141)	18.02	0.88 (0.67 to 1.15)
Other cancers	140-209, except above	51.59 (195)	47.19		37.96 (311)	39.39	0.83 (0.70 to 1.00)
All circulatory diseases	390-458	132.54 (501)	115.18		93.14 (763)	99.15	0.86 (0.77 to 0.96)
Ischaemic heart disease	410-414	64.02 (242)	57.41		41.02 (336)	42.85	0.75 (0.63 to 0.88)
Other heart	420-429	15.34 (58)	11.90		9.03 (74)	10.12	0.85 (0.60 to 1.20)
Cerebrovascular disease	430-438	32.54 (123)	27.86		27.71 (227)	29.19	1.05 (0.84 to 1.30)
Other circulatory	390-409, 440-458	20.63 (78)	18.02		15.38 (126)	16.98	0.94 (0.71 to 1.25)
All digestive disease	520-577	18.25 (69)	16.53		15.38 (126)	15.67	0.95 (0.71 to 1.27)
Liver disease	570-573	5.56 (21)	5.48		7.20 (59)	7.20	1.32 (0.80 to 2.16)
Violence	800-999, E800-999	13.49 (51)	12.86		19.04 (156)	19.20	1.49 (1.09 to 2.05)
Suicide	E950-959	4.50 (17)	4.79		6.10 (50)	6.03	1.26 (0.73 to 2.18)
All other diseases	All codes, except above	92.06 (348)	77.80		61.4 (503)	65.59	0.84 (0.74 to 0.97)

Right table (Clean):

Cause of death	ICD-8 codes	Never users	Ever users	Adjusted relati..	F8	F4	F7
Breast	174	44.44 (168)	Null	38.09 (312)	0.90 (0.74 to 1.08)	43.9	39.4
Cerebrovascular disease	430-438	32.54 (123)	Null	27.71(227)	1.05 (0.84 to 1.30)	27.9	29.2
CNS-pituitary	191, 1943	5.03 (19)	Null	3.42 (28)	0.84 (0.47 to 1.50)	4.5	3.7
Gallbladder/liver	155-156	3.17 (12)	Null	1.83 (15)	0.65 (0.30 to 1.39)	3.1	2.0
Invasive cervix	180	3.70 (14)	Null	5.62 (46)	1.34 (0.74 to 2.44)	4.0	5.4
Ischaemic heart disease	410-414	64.02 (242)	Null	41.02 (336)	0.75 (0.63 to 0.88)	57.4	42.9
Large bowel and rectum	153-154	21.16 (80)	Null	11.84 (97)	0.62 (0.46 to 0.83)	20.1	12.4
Liver disease	570-573	5.56 (21)	Null	7.20 (59)	1.32 (0.80 to 2.16)	5.5	7.2
Lung	162	26.45 (100)	Null	31.49 (258)	1.22 (0.96 to 1.53)	26.1	31.7
Main gynaecological	180, 182, 183	28.57 (108)	Null	16.36 (134)	0.63 (0.49 to 0.82)	26.5	16.8
Melanoma	172	2.65 (10)	Null	1.95 (16)	0.73 (0.33 to 1.61)	2.7	2.0
Other cancers	140-209, except above	51.59 (195)	Null	37.96 (311)	0.83 (0.70 to 1.00)	47.2	39.4
Other circulatory	390-409, 440-458	20.63 (78)	Null	15.38 (126)	0.94 (0.71 to 1.25)	18.0	17.0
Other heart	420-429	15.34 (58)	Null	9.03 (74)	0.85 (0.60 to 1.20)	11.9	10.1
Ovary	183	19.84 (75)	Null	9.16 (75)	0.53 (0.38 to 0.72)	18.0	9.5
Site unknown	199	22.22 (84)	Null	17.21 (141)	0.88 (0.67 to 1.15)	20.5	18.0
Suicide	E950-959	4.50 (17)	Null	6.10 (50)	1.26 (0.73 to 2.18)	4.8	6.0
Uterine body	182	5.03 (19)	Null	1.59 (13)	0.43 (0.21 to 0.88)	4.5	1.9
All cancers	140-209	205.29 (776)	Null	160.16 (1312)	0.85 (0.78 to 0.93)	194.6	165.5
All causes	000-999, all E codes	462.16 (1747)	Null	349.62 (2864)	0.88 (0.82 to 0.93)	417.5	365.5
All circulatory diseases	390-458	132.54 (501)	Null	93.14 (763)	0.86 (0.77 to 0.96)	115.2	99.2
All digestive disease	520-577	18.25 (69)	Null	15.38 (126)	0.95 (0.71 to 1.27)	16.5	15.7
All other diseases	All codes, except above	92.06 (348)	Null	61.4 (503)	0.84 (0.74 to 0.97)	77.8	65.6
Observed rate (No)	Standardised rate*	Observed rate (No)	Null	Null	Null		
Violence	800-999, E800-999	13.49 (51)	Null	19.04 (156)	1.49 (1.09 to 2.05)	12.9	19.2

Datasets Relationship Model

Causes of Death

Cause of Death

Cause of death

Measure Values
1.0   417.5

Value

Breast
Cerebrovascular disease
CNS-pituitary
Gallbladder/liver
Invasive cervix
Ischemic heart disease
Large bowel and rectum
Liver disease
Lung
Main gynaecological
Melanoma
Other cancers
Other circulatory
Other heart
Ovary
Site unknown
Suicide
Uterine body
All cancers
All causes
All circulatory diseases
All digestive disease
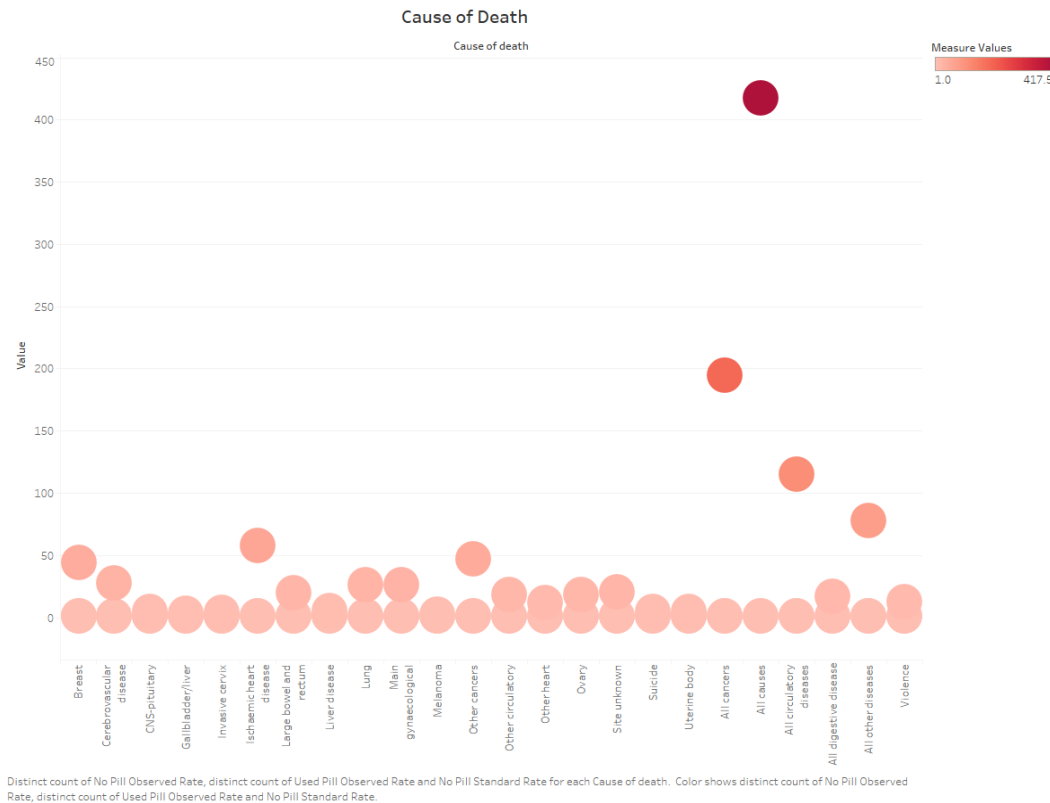All other diseases
Violence

Distinct count of No Pill Observed Rate, distinct count of Used Pill Observed Rate, No Pill Standard Rate, Used Pill Standard Rate and distinct count of Adjusted Relative Risk for each Cause of death. Color shows distinct count of No Pill Observed Rate, distinct count of Used Pill Observed Rate, No Pill Standard Rate, Used Pill Standard Rate and distinct count of Adjusted Relative Risk.
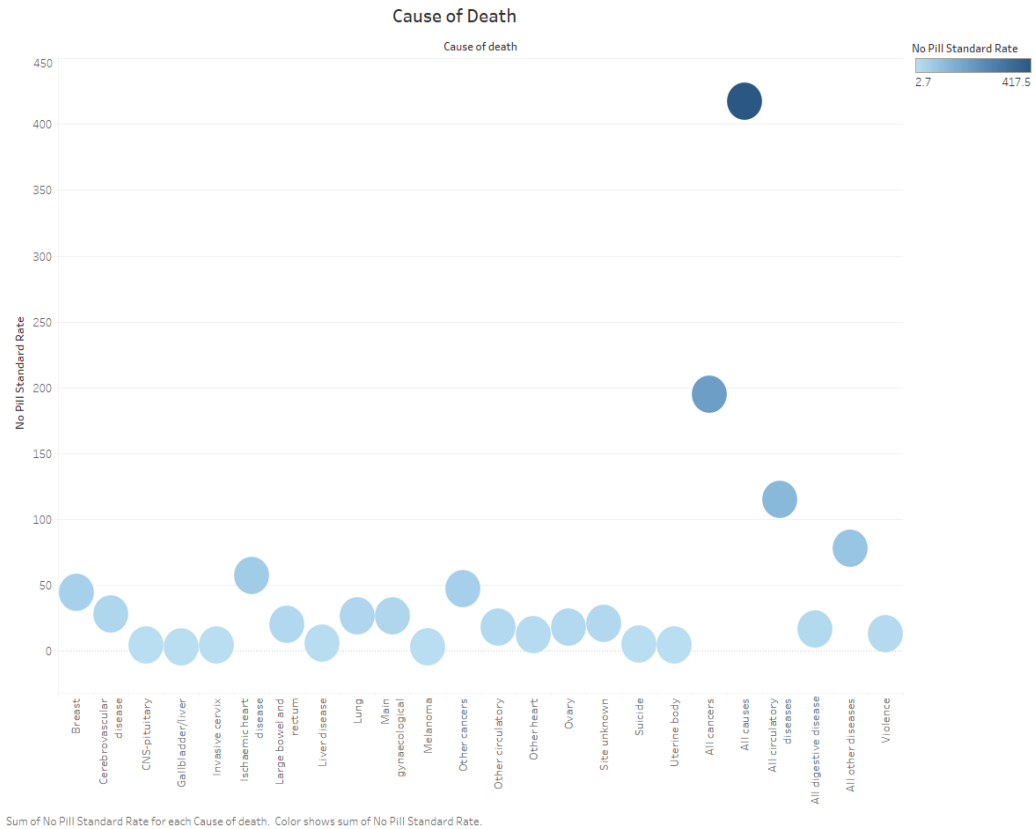
The Cause of Death Histogram resulted in:

• The top three causes of the death according to the histogram were any kinds of causes, cancers, and air circulatory issues.

• The subjects may have contracted the cancer or other causes of death possibly before or during the study.

• Women are still at risk of death for taking the pills. Women should find better alternatives to control birth.

Scatter Plot 1

- The scatter plot showed some outliers in the dataset.

- The possible deaths were plotted on the x- axis and the measurements of the subjects whom used the pills.

Scatter Plot 2

Cause of Death

Cause of death

No Pill Standard Rate
2.7   417.5

Sum of No Pill Standard Rate for each Cause of death. Color shows sum of No Pill Standard Rate.

- The scatter plot displayed the causes of death on the x- axis.

- The y-axis contained the subjects that never used contraceptive pills.

   A few outliers were dually noted.