Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods 1. *Literature Search*

D.D. and T.C. independently searched the titles and abstracts without knowing each other's choices according to the Rayyan platform (1). We also manually searched the references of the selected papers and existing reviews to identify any studies potentially missed by the initial search, and contacted authors as needed for more information. eFigure 1 below depicts the flow-chart for the literature search process.

While Schernhammer and Colditz (2) meta-analysis attempted to minimize overlapping time periods and regions among included studies, they did include some overlapping time periods and regions (3–10). Likewise, while we focused on cohort data from 1980 on, we allowed for some overlap in time periods and regions and did not exclude studies they had analyzed (2) to avoid bias and to better answer our research question.

The databases we refer to in the main manuscript are the English General Register Office (GRO), and Office for National Statistics (UK-ONS), the US National Institute for Occupational Safety and Health (NIOSH), National Outcomes Measurement System (NOMS). We also queried other CDC tools - Wide-ranging Online Data for Epidemiologic Research (WONDER), and Web-based Injury Statistics Query and Reporting System (WISQARS) – and reviewed Association of American Medical Colleges (AAMC) physician workforce data in an attempt to calculate SMRs for the time periods included in NOMS data; we also searched Federation of State Medical Boards data to better understand US physician data. For other countries, we searched the Queensland Regional Statistical Information System (QRSIS), Australian Bureau of Statistics, searched the Cause of Death Query online (CoDQL) for causes of death by country and sex in the WHO Mortality Database. We also searched databases from Japan (Tokyo Medical Examiner's Office), Taiwan (Taiwan Medical Association Physician Insurance Program), Denmark (Danish Medical Register on Vital Statistics), Norway (Census data conducted by Statistics Norway) and Finland (Finnish Medical Association and the database of Statistics Finland). We were unable to find online data to calculate physician suicide SMR from other countries of the systematic review.

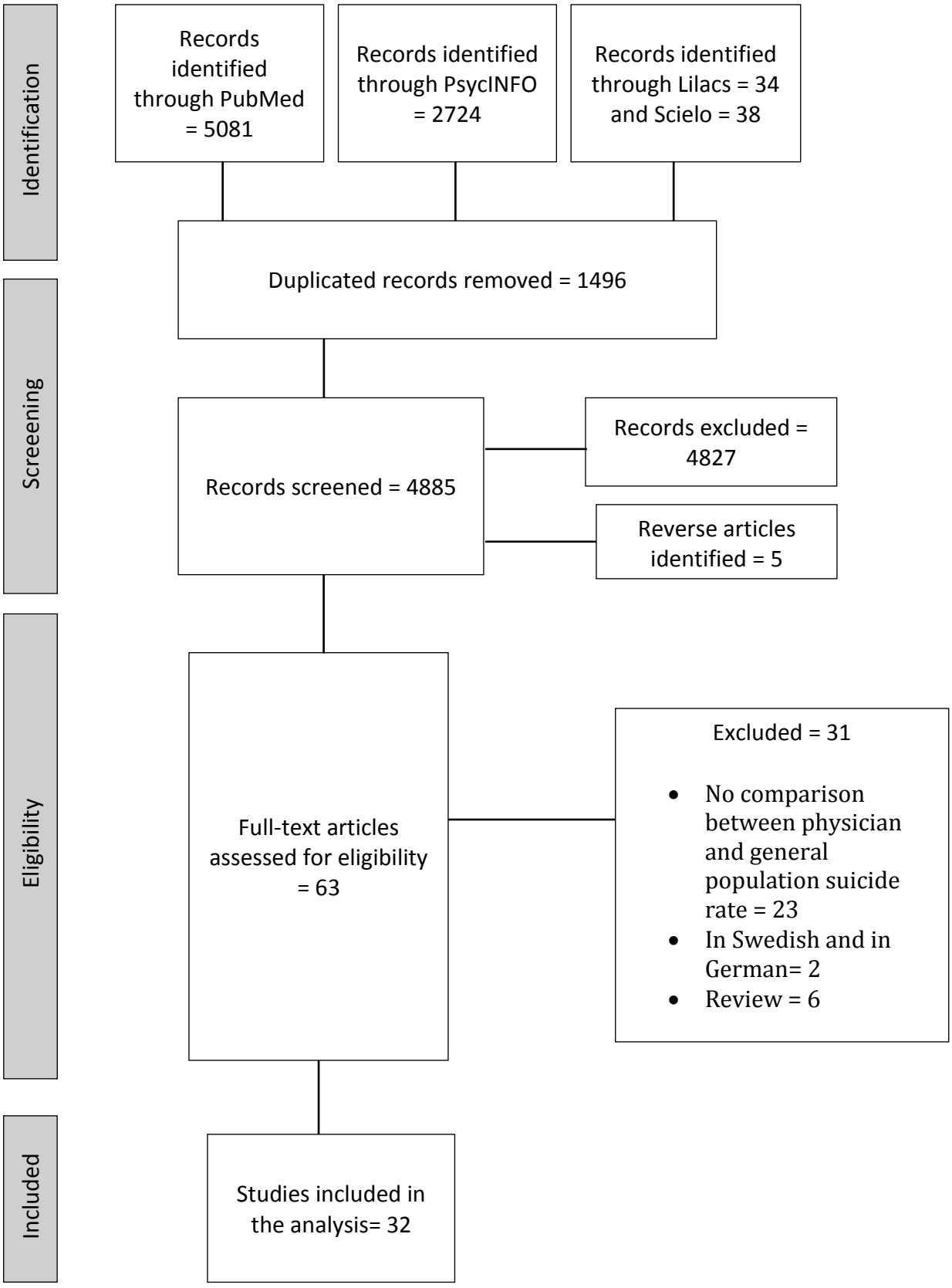
For the datasets on England (UK ONS), while we had found a dataset that had already estimated the male and female physician SMRs (and PMRs) for 2011-2015, we could not find a dataset that calculated these SMRs nor had all the datapoints for calculation prior to 2011. Instead, for 2001-2010 we used multiple datasets provided by the UK ONS (some on the website and some sent to us by email communications): one on medical practitioner suicides by each year from 2001-

2017 (we used the 2001-2010 data) and another on general population suicides, as well as 2 datasets on occupation breakdown per 2001 census for both the general and physician populations.

We averaged the deaths observed and expected from those sources. The caveats are that the occupation data are only for the 2001 census (the next census came in 2011) and that it included only employed and self-employed populations, with no mention of unemployment for either physicians or the general population. However, the ages were filtered to 20-64 for both physicians and non-physicians.

As to Australia, for Milner et al. (11) we obtained the physician suicide data (age 20-70) from the paper (which used census data from 2006 for physician occupations), but did not find population data to calculate the SMRs; instead, we found the population suicide data for the same time period in another dataset from the Australian Bureau of Statistics, and averaged the death rates for the same years (2001-2012) for ages 20-69 years (the population age filter closest to the physician population data). Another limitation is that some of the data included in Kolves and De Leo 2013 (12) would also be included in Milner et al (11), as the former covers Queensland, Australia from 1990-2007 while the latter covers all of Australia from 2001-2012.

Therefore, while we calculated SMRs for 2001-2010 in England and 2001-2012 in Australia, the data should be interpreted in the context of the above limitations.



eFigure 1. Flow diagram of the systematic review

eMethods 2. *Data Extraction*

The standard errors (SEs) were calculated from confidence limits (2,13), using the formula [log_2.718282 (SMR) - log_2.718282 (Lower Confidence Limit)]/1.96. If confidence limits were not provided, we calculated SEs based on the formula $SE=\sqrt{O/E^2}$. SE is used as study weights in the meta-regression models when assessing the influence of time on SMRs. Confidence intervals instead of SE were also calculated for confirmation.

Quality scores: we followed the quality assessment instrument used by Schernhammer and Colditz (2004) to evaluate whether selection and misclassification biases had been minimized and whether there was sufficient follow-up for primary outcomes. Two authors (D.D., and W.G.) read each study independently and scored the 4 items of the meta-analysis as 0, 1 or 2 (higher numbers indicating higher quality): "check of suicides by death registers to avoid misclassification (all, some, or none of the reported suicides were checked), duration of the evaluated time period in years (>10 years, 4–10 years, 2–3 years), age standardization (standardized by using more than one age group, standardized for age >25 years only, no age standardization), and detail of reported inclusion criteria or definition of study group (very detailed, some detail, inaccurate)" (2). We used the same scores for dataset descriptions. We then calculated final quality scores for the included studies; high quality studies scored 6-8, and low-quality studies scored 0-5.

eMethods 3. *Statistical Analysis*

Our criteria for the meta-analysis were papers/datasets whose cohorts (irrespective of publication date) included only time periods from 1980 on, and we excluded articles that did not compare male and female physician age-standardized suicide mortality rates to the general population if this information could not be calculated from relevant sources. Although most of the S&C papers (2) were published after 1980, they used cohorts that started much earlier than 1980 (typically decades earlier) and the ones whose cohorts started after 1980 were generally included in our meta-analysis dataset (such as Lindeman, Hawton and Innos et al) (14–16) with the exception of Frank et al. (17) (excluded because it had PMR and not SMR data) and Herner et al. (18) (excluded because it is in Swedish).

To be consistent with the Schernhammer and Colditz (2004) meta-analysis we used two strategies to account for publication bias: 1) The Begg plot calculated by the Begg and Mazumdar adjusted rank correlation test (19); 2) The Egger plot produced by the regression asymmetry test

of Egger et al. (20). As the random choice of the axes directly impacts the funnel plot shape, we included the SE (standard error) in the Y-axis (21) representing study size and the ratio in the X-axis representing the effect sizes. The funnel plot displays confidence interval boundaries and demonstrates whether studies are distributed symmetrically across the vertical line and fall within the funnel margins. Values to the left and right of the vertical line indicate that physician suicide rates were respectively lower and higher than the population. In summary, a symmetrical distribution of the funnel plot suggests that there is no risk of publication bias (22).

We conducted sensitivity analyses by plotting the pooled effect size and excluding one study at a time to estimate its individual effect on the results overall (i.e. whether removing any particular study would change the pooled effect size or significance of the remaining studies); we also conducted sensitivity analyses on study quality criteria.

We further did a meta-regression including the studies whose cohorts started pre-1980 from the S&C paper, and as to the post-1980 data we used our dataset – including 3 studies that were also in the S&C paper, and also added the 2 papers from S&C which had not fulfilled the criteria for our meta-analysis (Frank et al and Herner et al.). These two papers were acceptable for the meta-regression testing time and gender effects as we could not impose our meta-analysis criteria on the S&C papers for the meta-regression.

Proportionate Mortality Ratio (PMR) according to US-National Institute for Occupational Safety and Health (NIOSH/NOMS) and Wide-ranging Online Data for Epidemiologic Research (WONDER): when Proportionate Mortality Ratio (PMR) was available but SMR data was not available and could not be extracted for the same population, such as in 2 compressed timespan datasets for NIOSH-NOMS, we reported PMRs but did not include them in the SMR analyses.

In the NOMS databases the 95% confidence intervals (95% CI) were computed based on the Poisson distribution if the observed number of deaths was 1000 or less; otherwise, test- based CIs were computed based on the Mantel and Haenszel chi-square test (23). For the PMR queries, death certificate data for decedents that died in one of 26 U.S. states between 1985-1998 and 1999,2003-2004,2007-2013 were used to extract age (ages 18-90), race (black, white), gender, usual occupation and underlying cause-of-death using ICD-9 and ICD-10 codes respectively for deaths caused by “Intentional Self Harm”.

REASON FOR EXCLUSION	Study (author and year)	Location or Cohort and Time Period Under Observation	Source of Information	Methods of suicide	Risk Factors for suicide	Physicians' Suicide Deaths compared to general population	Gender with higher suicidal risk	EXTRA
DOES NOT MEET INCLUSION CRITERIA: No comparison with general population and no suicide data on male/female physician.	Gold et al., 2013 (24)	16 US states in 2003–2008	National Violent Death Reporting System	Leading methods: For physicians, firearms were the most common method (48%), poisoning (23.5%), blunt trauma (14.5%), and asphyxia which included hanging (14%).	Age, being married, other/missing race, known mental illness, job problem.	No data	No data	
DOES NOT MEET INCLUSION CRITERIA: No comparison with general population.	Hikiji, et al., 2014 (25)	Tokyo Metropolitan area in 1996-2010	Tokyo Medical Examiner's Office	Leading methods: Hanging (57.47%), Poisoning (14.94%) and Jumping (13.79%).	Specialties with highest being internist, psychiatrist and unknown	No data	No data	
DOES NOT MEET INCLUSION CRITERIA: No comparison with general population. SAMPLE OVERLAP	Pan et al., 2009 (26)	Taiwan 2000-2008	Taiwan Medical Association Physician Insurance Program	Leading methods: Hanging/suffocation (n = 9, 28.1%), drowning (n = 6, 18.8%) and jumping from heights (n = 6, 18.8%).	Middle-aged physicians	No data	No data, although all but one of the suicides were in males.	
SAMPLE OVERLAP	Agerbo et al., 2007 (27)	Denmark, 1991 - 1997	Danish Medical Register on Vital Statistics,	We found a particularly high risk of suicide by medicines among doctors despite an excess risk of suicide by other means also.	Psychiatric admission, employment status, marital status and gross income.	Overall doctors - Higher *	No description.	Date range already included in Hawton et al. 2011 with major overlapping sources.

SAMPLE OVERLAP	Aasland et al., 2011 (28)	Norway, 1960 - 2000	Census data conducted by Statistics Norway.	No description.	Compared with the general population, suicide was the only cause of death with a higher mortality rate for doctors compared to general population.	Male doctors - Higher * Female doctors - Higher *	Female **	Same research group and database evaluated at Hem, 2005 and Aasland 2001.
SAMPLE OVERLAP	Burnett et al., 1997 (29)	24 U.S. states, 1984–1988	The National Institute for Occupational Safety and Health (NIOSH) and the National Center for Health Statistics (NCHS).	No description.	Higher occurrence of suicide among workers in offices of physicians.	Overall doctors - Higher	No description.	
SAMPLE OVERLAP	Aasland et al., 2001 (30)	Norway, 1960 - 1989	Census data conducted by Statistics Norway.	For both males and females, suicide by poisoning is twice as common among physicians. The majority of the male physician's suicides were by poisoning with medication. There was a change in suicide methods during the observation period. From 1960 to 1979, 41% of the male suicides were by poisoning compared to 59% in 1980–1993. This was accompanied by a decrease in suicide by firearms	Suicide risk for male physicians was 3.2. (95% CI, 1.8–5.6) times that of females, and for singles 4.9 (95% CI, 3.4–7.2) times that of married/ cohabitants. The relative risk of suicide for a single male physician is accordingly 15.5 times higher than for a married/ cohabitant female physician.	Male doctors - Higher * Female doctors - Higher *	Male ¥*	Same research group and database evaluated at Hem, 2005 and Aasland 2011.

				from 22 to 15%. Among the female physicians, 85% of the suicides were by poisoning.				
FULLTEXT NOT AVAILABLE	Kelly et al., 1995 (31)	England and Wales, 1982 - 1992	N/A	N/A	N/A	N/A	N/A	
DOES NOT MEET INCLUSION CRITERIA: Assesses only specific specialties	Doll and Peto, 1977 (32)	England, 1952 - 1971	Records from the Medical Directory	No description.	Four deaths by suicide among psychiatrists with 2.8 expected.	Male doctors only - Higher	No description.	
DOES NOT MEET INCLUSION CRITERIA: Assessing anethesiologists only and not physicians in general	Lew, 1979 (33)	United States, 1954, 1959, 1967 and 1976	American Society of Anesthesiologists members; Death certificates (do not specify institution).	No description.	Anesthesiologistshad about 15 % higher mortality rate than general population. Higher occurrence of suicide under age 55.	Male doctors - Higher Female doctors - insufficient data on suicide	No description.	

MEETS EXCLUSION CRITERIA: study with only some medical specialties	Alexander et al., 2000 (34)	United States, 1979 - 1995	Physician Master File maintained by the American Medical Association	Increased risk of suicide, especially drug-related suicide, in anesthesiologists compared with internists	Increased rates of suicide and drug-related suicides in anesthesiologists compared with the general population. Suicide rates also generally increased with increasing years since graduation—that is, increasing age. Increased risk of suicide, especially drug-related suicide, in anesthesiologists compared with internists	Male anaesthesists- Lower * Female anaesthesists - Higher Male and female internists - Lower *	Female **	
MEETS EXCLUSION CRITERIA: study with only some medical specialties	Neil et al., 1987 (35)	United Kingdom, 1957 - 1982 (Fellows of the Faculty of Anaesthetists of the Royal College of Surgeons)	The Faculty of Anaesthetists of the Royal College of Surgeons; General Medical Council Registry.	No description.	Anaesthetists had a higher, though not significantly higher, mortality from suicide than all doctors.	Male doctors only - Higher *	No description.	
MEETS EXCLUSION CRITERIA: study with only some medical specialties	Ohtonen and Alahuhta 2017 (36)	Finland, 1996 - 2014	The membership files of the Finnish Medical Association; the database of Statistics Finland.	No description. The authors were not able to specify the methods used for suicide.	The rate of suicides of anesthesiologists was more than three times higher than that for pediatricians and more than five times higher than that of the general population.	Anesthesiologists - Higher Pediatricians - Higher	Male **	

eTable 1 – Papers excluded from main review and analyses, and the reasons for exclusion

eMethods 4. Meta-analysis

Meta-analysis: we excluded the following papers from the meta-analysis: 1) Roberts et al. (2013) (37), as it included deaths of undetermined intent as suicides (e.g., lost at sea, fall from medium height), and also due to issues with the data; 2) Hawton et al. (2011) (15) as they used a nested case-control study and did not provide age-adjusted numbers for physicians and the general population; 3) Stefansson and Wicks (1991) (13) as we were unable to accurately estimate SMRs (SMR data was shown in one figure without values, and we could not find age-standardized suicide rates in a relevant time-period for the population even on searching the World Health Organization database (https://www.who.int/mental_health/media/swed.pdf); 4) Richings (1986) (38) as the data from 1980 was insufficient to calculate SMRs (no data on deaths observed and expected), so we used only 1982 data for the meta-analysis and also made an exception for a dataset that included 1979; 5) Frank (2000) (17) as they used PMR data (taken from NOMS) instead of SMR.

When analyzing a subset of studies with higher quality scores (>5), male physician results remain largely unchanged (0.67, 95% CI=0.54–0.80) with no relevant changes in heterogeneity compared to the pooled effect of all studies (Q=9.08, p=0.25, I^2=22.9% and Tau^2 of 0.8%) (eFigure 2). The sensitivity analysis for high quality studies (n=8) demonstrated the same pattern than the main analysis (eFigure 3). We could not analyze low-quality studies as there was only one.

#	Study (author and year)	Location or Cohort and Time Period Under Observation	Source of Information	Methods of suicide	Risk Factors for suicide	Physicians' Suicide Deaths compared to general population	Gender with higher suicidal risk
1	Meltzer et al., 2008 (39)	England and Wales, 2001-2005	Office for National Statistics (ONS)	No description.	No description, though access to lethal means in medical and agricultural professions is suggested.	Male doctors - Lower Female doctors - Higher	Female +
2	Milner et al., 2016 (11)	Australia, 2001-2012	National Coronial Information System (NCIS)	51% of suicides were by self-poisoning (higher than other occupations), hanging (24%, much less than other occupations), while <5% were by each of firearms, carbon monoxide, or were not recorded; roughly 15% were by other methods.	Suicide rate 62% higher (significant) for health professionals (not only medical practitioners) with ready access to prescription methods compared to those without access Significant interaction between sex and occupation showing female doctors had significantly higher suicide rates, though not as high as nurses/midwives.	Compared to other occupations Male doctors - Lower Female doctors - Higher*	Male +
3	Yaghmour et al 2017 (40)	United States, 2000 - 2014	The Accreditation Council for Graduate Medical Education (ACGME); The National Death Index (NDI), a division of the National Center for Health Statistics	66 total suicides (51 men, 15 women), with 16 residents using firearms, and 16 intentionally overdosing on drugs or other substances. Suicide by leaping from heights or by asphyxia by hanging, strangulation, or inhalation accounted for 18 deaths, and 16 residents died by suicide by other means or by unspecified means.	Residents in age cohorts 35–44 and 45–54 (95% CIs of the ORs exceeded the rate of the general population). Higher rates of suicide for residents early in their training (the majority of suicides occurred in years 1 and 2 of training and during the months of July–September).	Male residents - Lower * Female residents - Lower * Overall residents - Lower *	Male +

4	Palhares-Alves et al. 2015 (41)	Sao Paulo, Brazil, 2000-2009	Regional Board of Medicine of the State of São Paulo; Mortality Information System of the Department of Health and Human Services, Brazilian Federal Government	25% of the women died of suicide by intoxication, and 25% by suffocation. Among the men, 34.2% of death certificates were missing the primary method of suicide completion; the most common among listed suicide methods involved firearm use (26.3%).	□ If total reported deaths are the basis of calculation, women are overrepresented. However, when the population of living physicians is used as the baseline, men are more likely than women to complete suicide. □ Being single and/or divorced.	Overall doctors - Similar Male doctors - Similar Female doctors- Lower	Male ¥*
5	Iannelli et al. 2014 (42)	Tennessee, USA, 2001-2009	The Vanderbilt Comprehensive Assessment Program (VCAP); The Tennessee Medical Foundation (TMF)	No description.	□Signs of mental illness or work incapacity, particularly in a physician using benzodiazepines or working in isolation.	Overall doctors - Higher	No description.
6	Kõlves and De Leo 2013 (12)	Queensland (Australia), 1990-2007	Queensland Suicide Register	Poisoning was used significantly more often by medical doctors (59.3%) and hanging was the second preferred method (22.2%).	□ High prevalence of psychiatric problems, especially depression. □ Relationship and work problems.	Male doctors - Lower Female doctors - Higher	Female +
7	Roberts et al. 2012 (43)	England and Wales (and Scotland in the early period); 1979-1980, 1982-1983, 2001-2005	Office of Population Censuses and Surveys and/currently Office for National Statistics from the United Kingdom	No description.	□ Occupations with significant increases in suicide rates over time were all manual occupations whereas occupations with decreased suicide rates were mainly professional or non-manual. □ Variation in suicide rates explained by socio-economic group almost doubled over time.	Male doctors - Higher Female doctors - Higher	Female +

8	Shang et al. 2011 (44)	Taiwan, 1990-2006	Taiwan Medical Association	No description.	Doctors were less likely to die of nearly all causes, including suicide, when compared to general population.	Overall doctors - Lower *	No description.
9	Hawton et al. 2011 (15)	Denmark, 1981-2006	Danish Cause of Death Register, Danish Psychiatric Central Register, Statistics Denmark	Medicinal drugs (55.8%), hanging (15.3%) and firearms and explosives (10.4%) were the top three methods of choice	Medically-related occupations. Access to lethal means.	Male doctors - Higher * Female doctors - Higher * Both - Higher *	Female +
10	Skegg et al. 2010 (45)	New Zealand, 1973-2004	Information Directorate of the New Zealand's Ministry of Health.	Poisoning (52.4%), hanging (9.5%) and firearms (4.8%) were the top three methods of choice	Male doctors in New Zealand were at low risk of suicide. Female doctors did not differ from general population.	Male doctors - Lower * Female doctors - Lower	Male +
11	Petersen and Burnett 2008 (46)	26 U.S. States, 1984-1992	National Occupational Mortality Surveillance	No description.	Female and male physicians had respectively higher and lower suicide risk than general population. Aging increases the risk for both genders.	Male doctors - Lower Female doctors - Higher *	Female +
12	Hem et al. 2005 (47)	Norway, 1960 - 2000	Census data conducted by Statistics Norway	No description.	Suicide rates increase steeply by age among male physicians.	Male doctors - Higher * Female doctors - Higher *	Male +
13	Torre et al. 2005 (48)	Maryland, USA, 1948 - 1998	The Johns Hopkins Precursors Study	The majority of men died of suicide by barbiturate overdose (42%), followed by gunshot wounds (23%), and hanging (14%). No description of female suicide methods.	Physicians are at substantially lower risk of dying compared to the general population for all causes of death except suicide. Psychiatrists, radiologists, rehabilitation medicine physicians, anesthesiologists and public health	Male doctors - Higher * Female doctors - Higher	Female +

					physicians had higher suicide rates than general population.		
14	Innos et al, 2002 £ (16)	Estonia, 1983 - 1998	Population registry and mortality database of Estonia, archive of death certificates of the Statistical Office of Estonia.	No description.	The rate of suicide was about 60% that of the general population in both genders.	Male doctors - Lower Female doctors - Lower	Male +
15	Hawton et al. 2001 £ (49)	England and Wales, 1991 - 1995	Office of Population Censuses and Surveys (currently Office for National Statistics), Medical directories, General Medical Council Register	No description.	Female and male physicians respectively had greater and lower suicide risk than general population. Anesthesiologists, community health doctors, general practitioners and psychiatrists had significantly increased rates compared to doctors in general hospital medicine	Male doctors - Lower * Female doctors - Higher	Female +
16	Frank et al. 2000 £ (17)	28 U.S. states, 1984–1995	National Occupational Mortality Surveillance	No description.	White male and female physicians were significantly more likely than other white professionals to die of suicide	Compared to other professionals White male and female - Higher* Black male and female - Similar	Female +
17	Juel et al. 1999 £ (9)	Denmark, 1973 - 1992	The Danish Medical Association (DMA) membership files; the Danish Central Population Register; the Cause of Death Register of the	Suicides mainly due to an excess number of suicides by poisoning.	Reduced mortality and an increased suicide rate among Danish doctors compared to the general population. Female doctors experience a suicide risk that seems to be comparable to that of male doctors.	Male and female doctors - Higher *	Female +

			National Board of Health				
18	Lindeman et al. 1997 £ (14)	Finland, 1986 - 1993	National Register of Medico-Legal Autopsies, Central Statistical Office of Finland, Education Registry of Statistics Finland, Finnish Medical Association Department	Physicians, especially males, took solid or liquid substances as a suicide method more often than the reference groups.	Male physicians had significantly higher suicide risk than other male professionals, but not higher than the general population. Both male and female physicians aged 55 and older had clearly higher risk than younger age groups. Female physicians had significantly higher risk of suicide compared with females in general and other female professionals. Psychiatrists had the highest suicide rate of the specialists.	Male doctors - Lower Female doctors - Higher *	Male ¥
19	Carpenter et al. 1997 £ (5)	England and Wales, 1962 - 1992	Department of Health Records, National Health Service Central Register of England and Wales	Poisoning, hanging, cutting and piercing, and firearms were respectively the top methods of choice.	Female doctors had almost two-fold excess death rate from injury and poisoning. This was largely attributable to an excess of suicide. A similar excess was not apparent in men, but rates of accidental poisoning were significantly raised (two-fold) and involved prescription drugs. Psychiatrists and general surgeons respectively had significantly higher and lower injury and poisoning rates than other specialties	Male doctors - Lower Female doctors - Higher Both - Higher	Female +
20	Stefansson and Wicks 1991 £ (13)	Sweden, 1961 - 1985	The Swedish Causes of Death Registry; National populations census	No description.	High suicide rates for both sexes. Lower suicide frequency is found in women in health care occupations with low educational requirements. This condition shows no differences among men.	Male doctors: Higher * Female doctors: Higher *	No description.

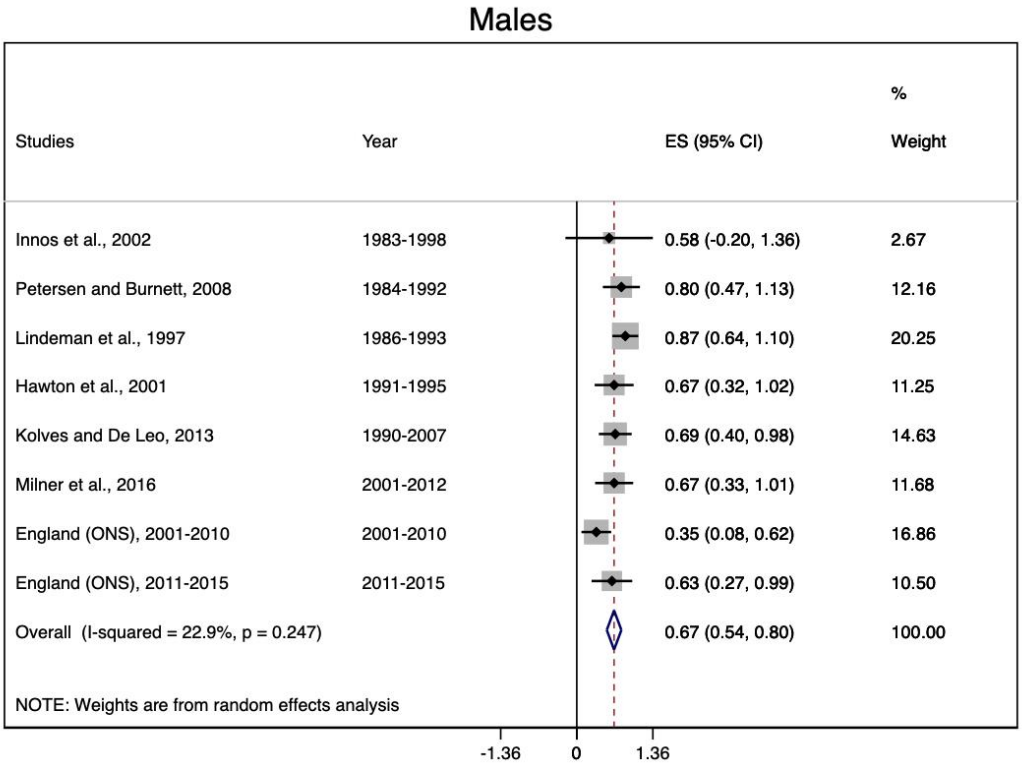
21	Ullmann et al. 1991 £ (4)	California, 1910–1981 (Graduates of Loma Linda University medical school / Graduates of University of Southern California medical school)	Alumni records from respective schools and from the American Medical Association's (AMA) records; obituaries in JAMA and the Western Journal of Medicine	No description.	Risk of suicide in both universities equals or exceeds risk in the general population. Suicide risk is significantly lower among Loma Linda University graduates (Adventists)	Male LLU doctors- Similar Male USC doctors- Higher *	No description.
22	Arnetz et al. 1987 £ (50)	Sweden, 1961-1970	1960 national census, National Board of Health and Welfare files, Swedish Causes of Death Registry	No description.	Higher suicide risk for female Swedish physicians compared to general population or other academics; male doctors had increased risk only when compared to other academics. General surgeons had significantly higher rates compared to psychiatrists, general practitioners and internists	Male doctors - Higher Female doctors - Higher *	Female +
23	Rimpelä et al. 1987 £ (51)	Finland, 1971 - 1980	Central Statistical Office of Finland, 1970 population census	No description.	Risk of suicide was twice as high for male doctors as for other professions.	Male doctors - Higher * Female doctors - insufficient data on suicide	No description.

24	Richings et al. 1986 (39)	England and Wales; 1972, 1975, 1979, 1980, and 1982	Office of Population Censuses and Surveys (currently Office for National Statistics) and Civilian Doctors' Career Index by the Department of Health and Social Security	Poisonous substances, including drugs, were the cause of death in 39 out of 55 doctors in our study (55% of the male and 90% of the female doctors).	Excess mortality from suicide in both young male and female doctors, using both the wide and narrow definitions. Immigrant doctors have significantly higher suicide rates. The suicide rate in anesthesiologists is significantly higher than that in other specialties: general medicine, surgery, psychiatry and pathology.	Male doctors - Higher * Female doctors - Higher *	Female ¥*
25	Revicki and May, 1985 £ (52)	North Carolina, USA, 1978 - 1982	North Carolina's death certificates (do not specify institution), 1980 population census	Firearms were the preferred method of suicide and rate of use was very close to general population; drugs were used slightly more often by physicians than general population.	More than two thirds of physician suicides occur after age 55. Physicians may have greater age-sensitivity to suicide than general population. Divorced and widowed physicians more prone to suicide than married physicians. Approximately 85% of the physicians were reported to have been depressed before their suicide and 54% were drinking heavily or using drugs.	Male doctors only - Higher	No description.
26	Pitts et al. 1979 £ (53)	United States, 1967 - 1972	JAMA obituary section, AMA records, death certificates from state authorities	Suicide by drug overdose occurs significantly more often in female physicians than general female population (71.1% vs. 45.5%); lower frequency of suicide by gunshot among female physicians ($p<0.001$).	Suicide rate in female physicians is almost four times that of general female population.	Female doctors only - Higher *	No description.

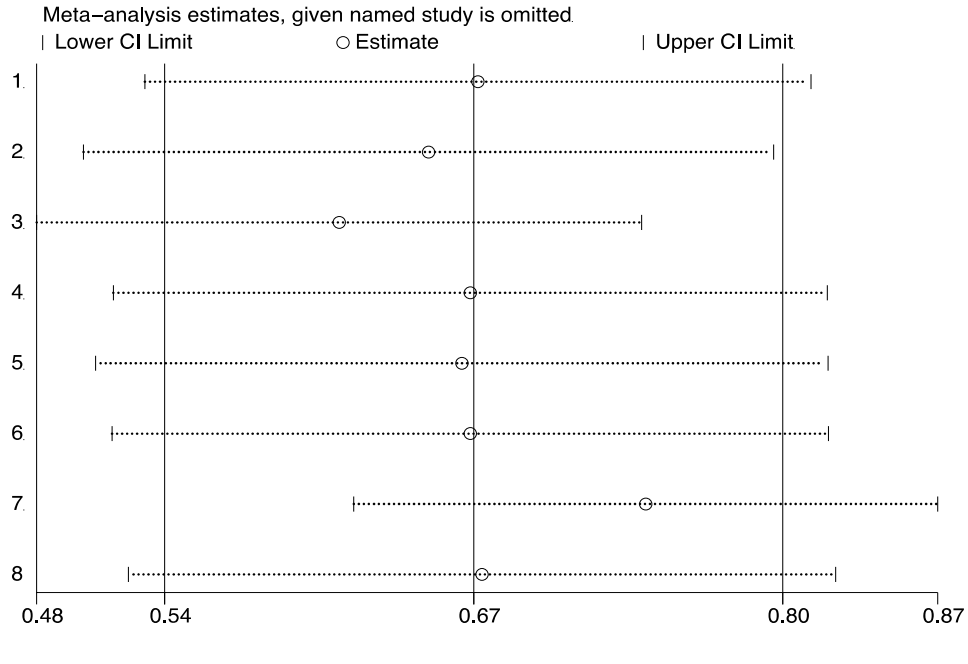
27	Rich and Pitts 1979 £ (54)	United States, 1967 - 1972	JAMA obituary section, AMA records	Suicide by poisoning occurs significantly more often in male physicians than general male population (47.3% vs. 20.1%); lower frequency of suicide by gunshot among male physicians (p<0.001).	The majority of suicides occurred during productive periods in professional life.	Male doctors only - Similar	No description.
28	Asp et al. 1979 (55)	Finland, 1953-1972	Central Statistical Office of Finland, death certificates	No description.	Male physicians less prone to accident but appear to die of suicide at frequency similar to general population.	Male doctors - Similar	No description.
29	Everson and Fraumeni 1975 (56)	United States, 1967 - 1971	Reports of attrition sent by U.S. medical schools to the Association of American Medical Colleges and JAMA obituaries, American Medical Association members	No description.	When analyzing physicians as a whole compared to general population, there is a modest deficit in suicide mortality; whereas, when analyzing female physicians a significant difference is found (p<0.05).	Overall doctors - Lower (modest) Female doctors - Higher *	Female +

30	Rose and Rosow, 1973 £ (3)	California, USA, 1959 - 1961	Death Certificates, 1960 population census	Physicians have marked preference for drug ingestion (55%) and a marked distaste for firearms (12%) in suicidal.	Physicians at twice the risk of suicide compared to other groups and the difference is highly significant (p<.0005). Physicians seem to have a greater age-sensitivity to suicide than the population in general. Divorced physicians are 13 times more likely to kill themselves than their married colleagues. No significant differences between suicide rates among different specialties.	Overall doctors - Higher *	Male ¥
31	Dean, 1969 £ (57)	South Africa, whites only, 1960–1966	South African Bureau of Statistics, 1964 population census, South African Medical and Dental Council Register, death certificates	12 of the 22 South African doctors, all South African-born, committed suicide by shooting. Second highest method was drugs (8).	Up to the age of 50 years observed suicide number (13) is the same as the expected number. Over the age of 50 years the 9 observed suicides are double the expected number. Depression often associated with a heavy work load, but sometimes a depressive psychosis was the commonest cause. About a third had been addicted to drugs which are not normally available to the general public, and the commonest drug was pethidine. Alcoholism was another factor that often appeared to play a part.	Male doctors - Higher Δ* Female doctors - insufficient data on suicide	No description.
32	Dublin and Spiegelman, 1947 (58)	United States, 1938 - 1942	American Medical Association	No description.	Mortality of male specialists, adjusted by age, was lower than that of nonspecialists.	Overall doctors - Higher	No description.

*eTable 2 – Systematic review of physician suicide: includes only original articles that assessed male and/or female physician suicide as an outcome * statistically significant; + crude measure: gender with higher value in its individual suicidal risk calculated was elected (independent of statistical significance); ¥ compared female and male doctors to search statistical significance; Δ Data on doctors + dentists £ Articles also analyzed by Schernhammer and Colditz, 2004*

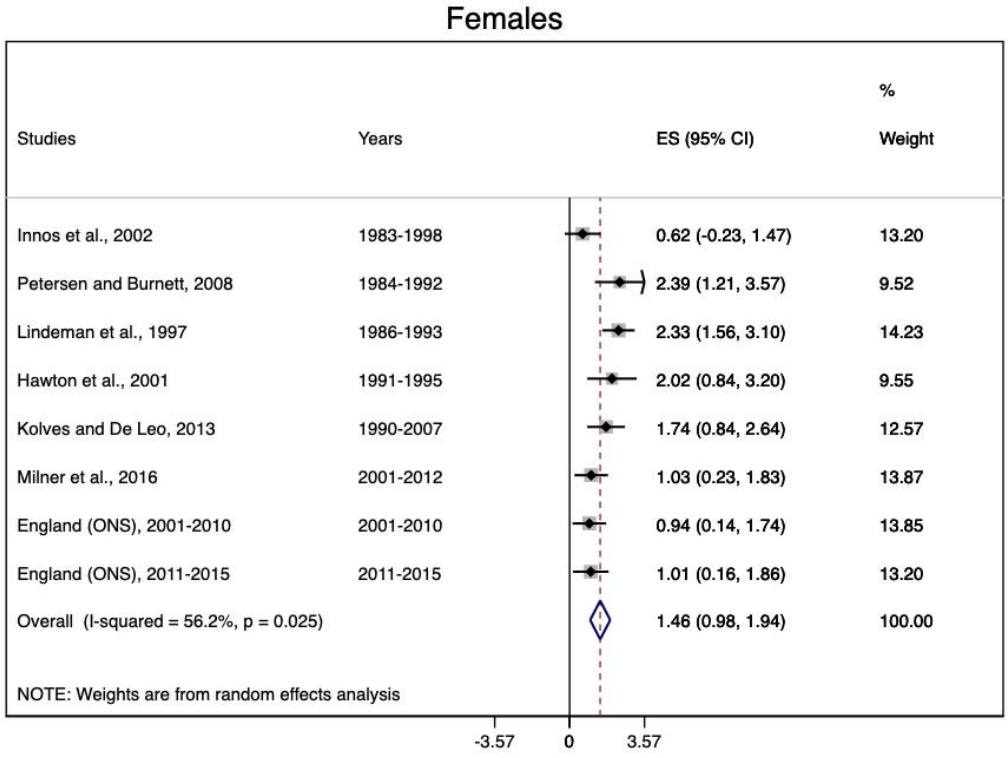


eFigure 2 - Forest plot of male physician suicide high quality studies using random effects model

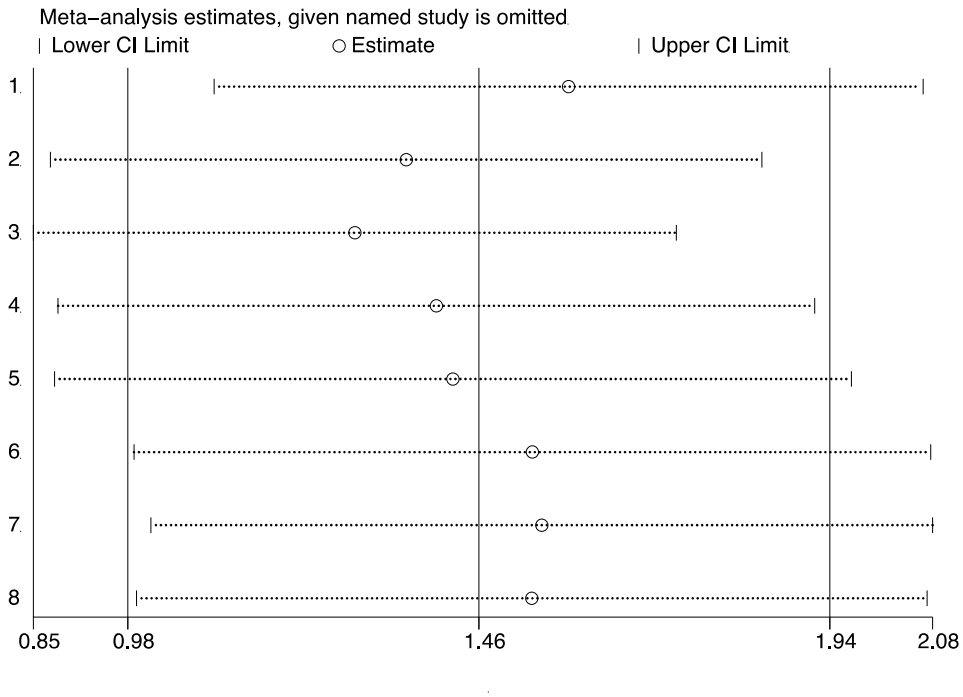


eFigure 3 - Sensitivity analysis of male physician suicide high quality studies

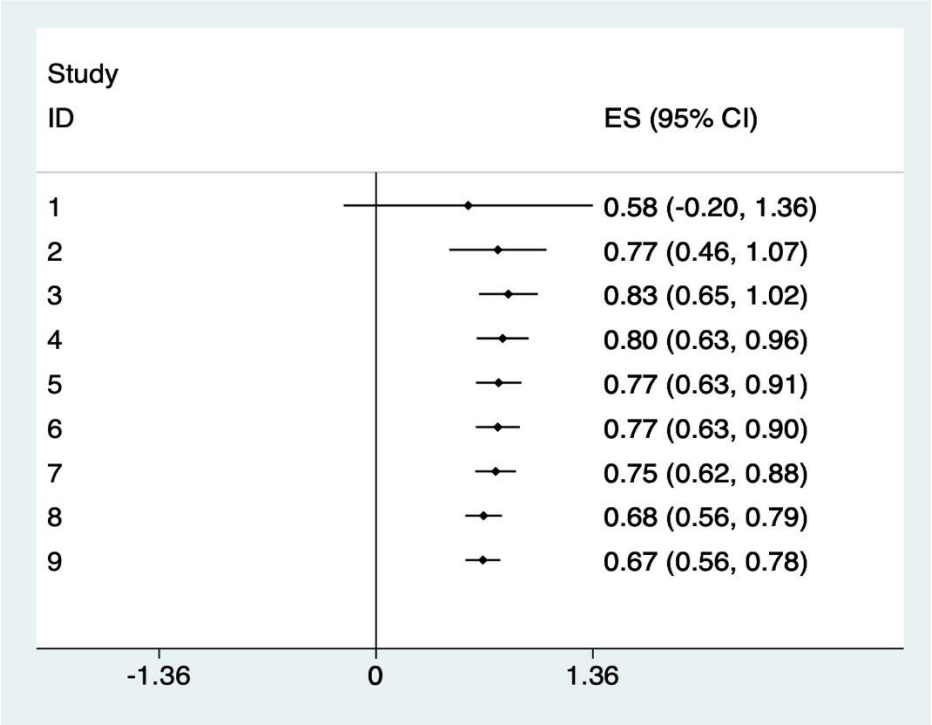
Additionally, on analyzing the subset of studies for female physicians with higher quality scores, the SMR for female physicians was not significant (1.46, 95% CI=0.98–1.94) and the dataset was heterogeneous (Q=15.98, p=0.025, I^2=56.2% and Tau^2 of 26.4%) (eFigure 4). The sensitivity analysis for high quality studies (n=8) demonstrated the same pattern than the main analysis (eFigure 5). We could not analyze low-quality studies as there was only one.



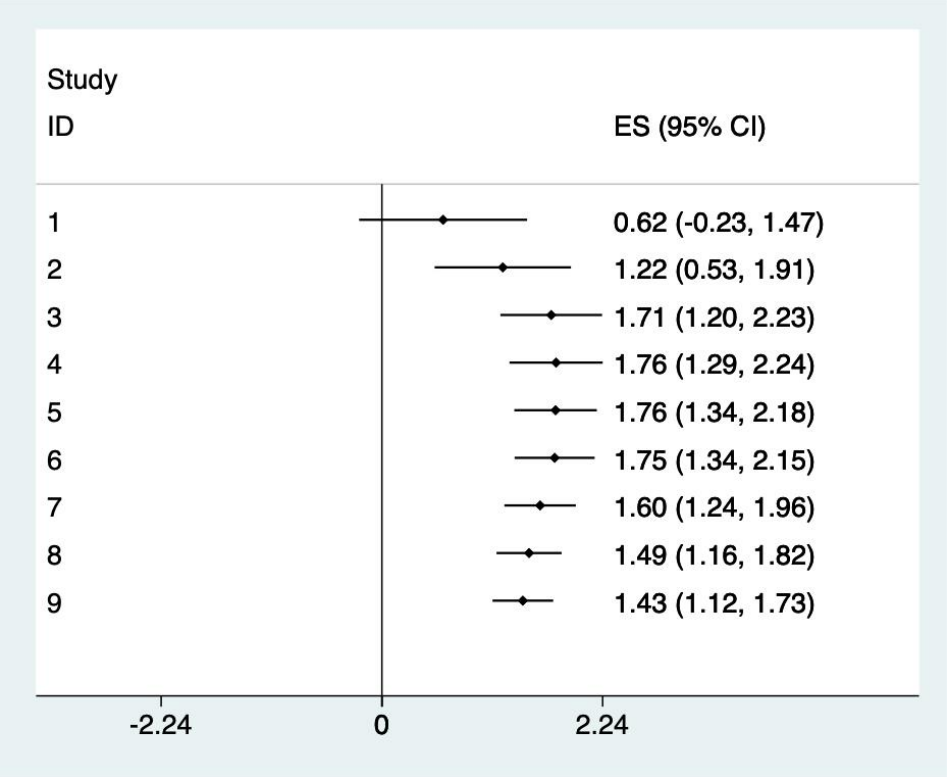
eFigure 4 - Forest plot of female physician suicide high quality studies using random effects model



eFigure 5 - Sensitivity analysis of female physician suicide high quality studies



eFigure 6 - Cumulative meta-analysis of male physician studies per year of cohort
Evaluation of a temporal trend, calculating the cumulative evidence over time beginning with the earliest and ending with the latest cohort timespans; ES: effect size; CI: confidence interval.



eFigure 7 - Cumulative meta-analysis of female physician studies per year of cohort Evaluation of a temporal trend, calculating the cumulative evidence over time beginning with the earliest and ending with the latest cohort timespans; ES: effect size; CI: confidence interval.

eMethods 5. *Meta-regression of observed and expected suicide rates over time*

Meanwhile, on meta-regression assessing the effect of time on suicide rates in the general female population, the results were in the direction of increased suicide rates after 1980 but were nonsignificant (β= 9.9, *p*=0.123, 95% CI -2.97 to 22.76). On meta-regression assessing the effect of time on observed suicide rates in female physicians, the results were in the direction of decreased suicide rates after 1980 but were again nonsignificant (β= -15.51, *p*=0.132, 95% CI -36.16 to 5.15).

eMethods 6. *Other Datasets Not in Main Analysis*

The 2 NOMS datasets included 727 white and black male physician suicides and 93 white female physician suicides and provided PMRs that were significant for each of those groups (each dataset reported less than 5 suicides for black female physicians but did not provide the exact value and suppressed their PMRs).

Despite searching multiple sources including CDC datasets such as WONDER and WISQAR, as well as AAMC publications, we could not reliably estimate physician SMRs in those populations as we were unable to obtain information to compare physician suicide rates to the general population suicide rates in the same age range and location.

As to England, the UK ONS provided both SMRs (which we used in our analyses) and PMRs (which we presented but did not use in our analyses) from 2011-2015, so we presented both in Table 1.

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