ARTICLE

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How Did the Netherlands's Euthanasia Policy Affect Suicide Numbers? Critiquing an Analysis on Trends in the Jurisdiction

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Abstract

Suicide contagion is a phenomenon where exposure to another's suicide or a pro-suicide message leads to heightened suicidality in the exposed individual. Some groups claim that euthanasia laws can cause a suicide contagion. A previously published article explores this idea through an observational analysis of suicide statistics in the Netherlands – a jurisdiction where euthanasia is legal and prolific. However, the article's conclusion cannot be supported by the analysis which is limited by validity threats. This paper breaks down the previous article to explain and correct the shortcomings. This paper finishes by reviewing quasi-experimental studies that also analyzed the relationship between euthanasia policies and suicide contagion, ultimately concluding that there is no evidence of association.

Key Words: euthanasia, Netherlands, suicide rates, suicide contagion

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Introduction

Suicide contagion is a phenomenon where exposure to the suicide of a peer, of a family member, or in the media can lead to heightened suicidality in individuals that already experience or have risk factors for suicidal ideation (Stack, 2003; Gould & Lake, 2013). The idea that euthanasia (this term is used to cover euthanasia and physician-assisted suicide because it is commonly used in the Netherlands, which is the focus of this article; phrases such as assisted dying and medical assistance in dying are also encompassed) can cause a suicide contagion has been proposed since at least the 1990s (Callahan, 1994). Jurisdictions with euthanasia policies have grown to large numbers in the past decade (Nicol & Tiedemann, 2015), prompting many groups and individuals to caution against legalization of euthanasia for fear of the proposed link with suicide contagion (Jones & Paton, 2015; Kheriaty, 2015; Boer, 2017; Dunn, 2017; Francis, 2017). Proponents of this link argue that a society that embraces euthanasia will set a precedent that death is a legitimate and justified solution for suffering caused by medical circumstances.

Suicide contagion is commonly observed in relation to suicide portrayal in the media (Cheng, Silenzio, & Caine, 2014; Jang, Sung, Park, & Jeon, 2016); evidence has shown that numerous celebrity suicides have led to transient suicide spikes in the general population. In contrast, evidence about the relationship between euthanasia and suicide contagion is lacking. Boer (2017) adds to this body of literature by theoretically exploring arguments which suggest that suicide rates would increase following policy legislation, and also exploring arguments that suggest suicide rates would decrease (this latter idea is proposed through mechanisms not related to suicide contagion). More importantly, experiences from the Netherlands are brought into the discussion. The Netherlands introduced their policy in 2002 and is one of only a few countries globally that is very open to euthanasia – even for individuals with chronic physical and mental disorders. This is significant because these disorders, especially mental disorders, are strongly tied to suicidal thoughts and behaviour. Boer (2017) analyzes population suicide data and reaches the conclusion that, “Evidence from the Netherlands suggests that the option of euthanasia for people with psychiatric conditions does not reduce the number of nonassisted suicides [i.e., the “traditional” form of suicide, and not physician-assisted suicide] and rather contributes to a rise in their numbers,” (p. 8). Amongst a landscape of discussion that is largely based on ethics, Boer’s (2017) analysis of suicide data is a rare instance where the argument can be objectively critiqued; this reveals a number of errors in

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their procedure that invalidate their conclusion.

This paper will attempt to provide an evidence-based overview of the errors in Boer's (2017) assessment. Existing literature with robust procedures will also be introduced to explain the state of knowledge on the suicide contagion and euthanasia relationship.

Limitations of Boer's Analysis

Boer's analysis of suicide data in the Netherlands can be split into three sections. Each of these divisions essentially made a broad argument that led to the conclusion that euthanasia contributed to increased suicide numbers.

Argument 1

Boer (2017) begins his analysis by noting that euthanasia as a percentage of total mortality between 2002 and 2016 tripled. He then compares this with a growing number of annual total suicides (raw unadjusted values) for the same period. Suicides reached a low point in 2007, after which they increased and reached their highest level ever in 2016. The positive growth trend shared between euthanasia and suicide mortality was used to determine what effect euthanasia had on suicides. Boer (2017) emphasizes the following as an important factor driving this growth: "from 2007 on [euthanasia] started becoming available to people with chronic and psychiatric illnesses, dementia, and others," (p. 6).

There are several issues with the above analysis. First, euthanasia as a percentage of total mortality is an inadequate choice to analyze trends in this context. If mortality was to significantly increase or decrease in an unrelated category, it would skew the observed trends in euthanasia mortality. An alternative that is just as easy to analyze but more protected against external influence is "euthanasia rates." It needs to be emphasized that this criticism is not meant to imply that Boer's (2017) chosen variable invalidates his conclusion, but the present article will look more closely at trends in euthanasia mortality and so the shift to "euthanasia rates" is explained.

Second, suicide numbers were analyzed as raw, unadjusted values when stating that they reached their highest level in 2016. Because rates were not used here either, the analysis does not control for changes in population size or composition. Boer (2017) is correct in stating that total

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suicides in the Netherlands reached an all time high in 2016, and that 2007 was the inflection point where a declining trend in suicides became an increasing trend instead. When looking at Figure 1, however, suicide *rates* peaked in 2013 and remained constant through 2016. This may seem like a small and insignificant distinction, but considering that euthanasia rates continued to grow during this period, the evidence of an association is less convincing. Suicide rates peaking in 2013 has additional importance in the context of the 2008 Recession, which will be further discussed below.

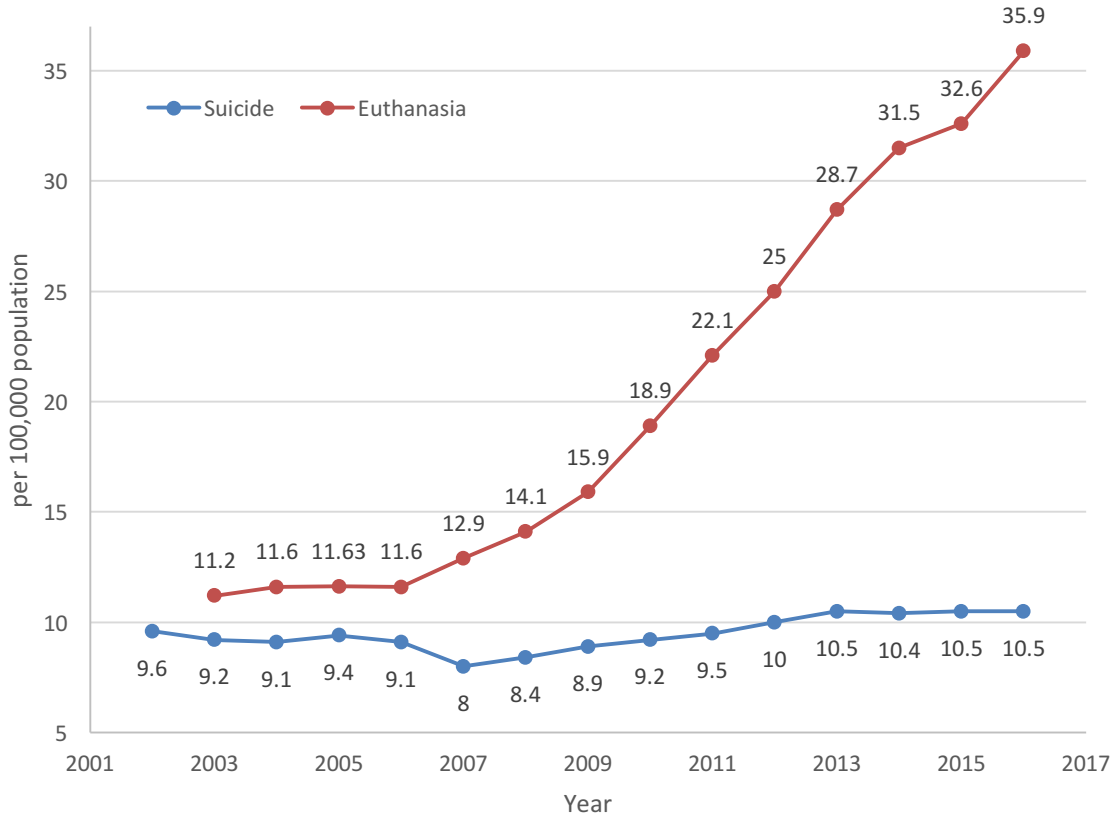

Figure 1: A plot of suicide and euthanasia rates in the Netherlands for the period 2002-2016. Suicide rate data was taken from the Organisation for Economic Cooperation and Development (OECD, 2019). Euthanasia rate data was created using euthanasia values provided by the Regional Euthanasia Review Committees (2017) and population data from the United Nations (2017).

Third, it is not clear what Boer (2017) means when he states that euthanasia for chronic and psychiatric illnesses was made available from 2007 on. The Netherlands has a long history of tolerance towards euthanasia, and this began in the early 1970s (Rietjens, van der Maas, Onuwteaka-Philipsen, van Delden, & van der Heide, 2009). The applicability of euthanasia for

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mental disorders had first been tested and supported in *State v. Chabot* in 1994 (Griffiths, 1995). Following this case, the Royal Dutch Medical Association published guidelines to help physicians responsibly facilitate euthanasia for psychiatric patients (Rietjens et al., 2009). The legitimacy of euthanasia for mental disorders was further validated in the 2002 *Brongersma* case (Rietjens et al., 2009). When reviewing the euthanasia legislation that was drafted in 2001, it was widely agreed that, though not explicitly stated, the wording does enable patients with mental disorders to qualify for euthanasia (Rietjens et al., 2009). It is additionally not possible to directly evaluate how the already established policy precedents were added to or further modified in 2007; the changes were not described, and a reference was not made available either.

Argument 2

Boer (2017) moves on to compare suicide in the Netherlands to similar surrounding countries that did not have euthanasia policies. The one exception is Belgium which has had a euthanasia policy in effect since 2002. Other countries include France, Germany, Sweden, and the United Kingdom. Suicide rates were used for comparison here. Boer (2017) drew up this comparison with the assumption that if euthanasia was not responsible for the growth in suicide trends, then such a pattern should be seen somewhere in countries that are otherwise very similar. In total, five countries experienced a notable growth trend in suicide rates starting in 2007-2008. The sixth country, Germany, also experienced this trend, but it began in 2009. Boer (2017) points out that the Netherlands had the most dramatic increase in suicide rates of the six countries. This fact is interpreted as support for the argument that euthanasia fueled suicide rates in the Netherlands. Boer (2017) rejects the assertion that this observation is the result of the 2008 Recession. They reason that all countries in this comparison were affected by the recession, but despite that, suicide rates grew the most in the Netherlands.

There are several issues with this argument as well. First is the issue of Belgium, which also had a euthanasia policy in effect. Eligibility for chronic physical and mental disorders is not explicitly stated in the Netherlands's euthanasia legislation but is instead implied based on its wording and external circumstances such as court cases (Rietjens et al., 2009). In contrast, Belgium's legislation explicitly allows these disorders to qualify for euthanasia (Naudts et al., 2006). Arguably, euthanasia for chronic physical and mental disorders is more legitimate in Belgium. Despite this, Figure 2 shows that Belgium's suicide rates have declined since 2001, aside from the period of 2008 to 2011 which

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overlaps with the 2008 Recession. Suicide rates reached their lowest point in 2015, the last year for which data was available. Though suicide rates from 1993-2001 are not shown in Figure 2, it should also be mentioned that suicide rates declined at a sharper rate *after* this period, coinciding with the point where Belgium's euthanasia policy came into effect. However, a point to emphasize is that this is not evidence that the sharp decline in suicide rates was caused by the euthanasia legislation, but if the analysis only involves a simple observation of suicide rate trends, then Belgium directly contradicts the conclusion that euthanasia contributed to growing suicide rates in the Netherlands. This is both because suicide rates declined more rapidly after Belgium's euthanasia legislation in 2002 and also that suicide rates in 2015 were the lowest in 52 years (OECD, 2019).

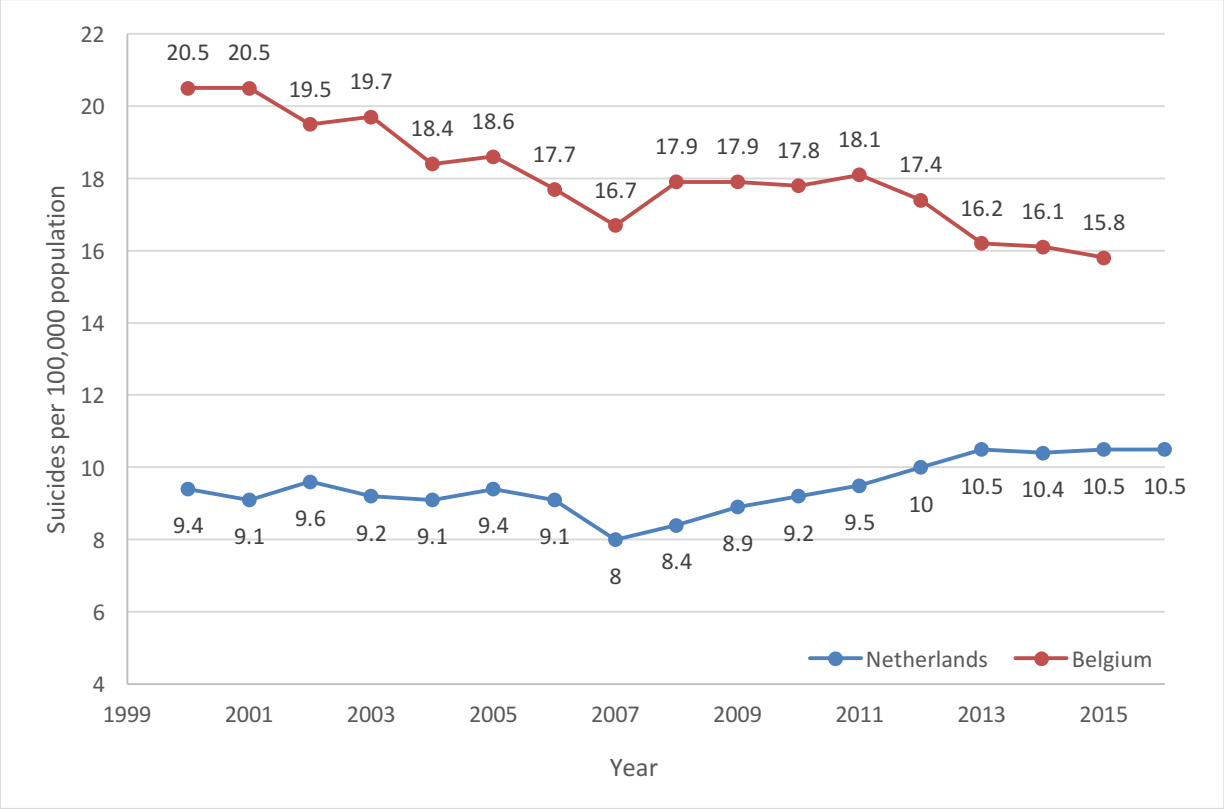

Figure 2: Suicide rates for Belgium and the Netherlands over time. Suicide rates are plotted for the period 2000-2015 for Belgium, and 2000-2016 for the Netherlands as per the available data. Suicide rate data for both countries was taken from the OECD (2019).

Second, even though all countries experienced the recession, it does not mean that they experienced it with the same degree of severity. Unemployment figures can be used to demonstrate

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one aspect of how different countries experienced the recession differently. This variable makes for a good exhibit because a substantial body of literature has linked unemployment with suicide rates in developed European countries (Bernal et al., 2007; Andriessen, Krysinska, & Lester, 2015). Three different measures of unemployment are presented in Table 1 for each of the countries compared by Boer (2017). The ratios show that the Netherlands experienced the greatest relative increase in unemployment across all three measures following the recession.

Table 1: Three different measures of unemployment in six European countries during the 2008 Recession. B=Belgium, G=Germany, F=France, N=Netherlands, S=Sweden, and U=United Kingdom. The ratio for each column was calculated by taking the largest unemployment value from 2009-2018 (post-recession) over the smallest unemployment value from 2005-2008 (pre-recession). Datasets were taken from Eurostats (2019). These three variables are all the different ways to approach unemployment statistics using the Eurostats database. Note: the "active population" is defined as the total labour force – the sum of all employed and unemployed persons.

	Unemployment as a percentage of the population that is 25-74 years old						Unemployment as a percentage of the total active population						Unemployment as a percentage of the total population					
	B	G	F	N	S	U	B	G	F	N	S	U	B	G	F	N	S	U
2005	4.5	7.1	4.8	3.3	4.3	2.3	8.5	11.2	8.9	5.9	7.7	4.8	5.0	7.2	5.3	4.0	5.5	3.2
2006	4.4	6.6	4.7	2.8	3.8	2.6	8.3	10.1	8.8	5.0	7.1	5.4	4.9	6.6	5.2	3.4	5.0	3.7
2007	4.1	5.5	4.3	2.2	3.2	2.5	7.5	8.5	8.0	4.2	6.1	5.3	4.5	5.6	4.8	2.9	4.4	3.6
2008	3.8	4.8	3.9	1.9	3.1	2.8	7.0	7.4	7.4	3.7	6.2	5.6	4.2	4.9	4.4	2.6	4.4	3.9
2009	4.3	5.0	4.8	2.3	4.4	3.9	7.9	7.6	9.1	4.4	8.3	7.6	4.7	5.1	5.5	3.1	5.9	5.2
2010	4.6	4.5	5.0	2.7	4.6	4.1	8.3	7.0	9.3	5.0	8.6	7.8	5.0	4.6	5.6	3.5	6.1	5.3
2011	3.9	3.8	5.0	2.8	4.1	4.1	7.2	5.8	9.2	5.0	7.8	8.1	4.2	3.9	5.5	3.5	5.5	5.5
2012	4.2	3.5	5.4	3.3	4.2	4.0	7.6	5.4	9.8	5.8	8.0	7.9	4.5	3.6	5.9	4.1	5.7	5.4
2013	4.6	3.5	5.7	4.3	4.3	3.8	8.4	5.2	10.3	7.3	8.0	7.5	5.1	3.6	6.3	5.1	5.8	5.2
2014	4.8	3.3	5.8	4.6	4.3	3.1	8.5	5.0	10.3	7.4	7.9	6.1	5.1	3.4	6.2	5.2	5.7	4.2
2015	4.8	3.1	5.8	4.3	4.2	2.7	8.5	4.6	10.4	6.9	7.4	5.3	5.1	3.2	6.3	4.8	5.4	3.7

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2016	4.5	2.8	5.6	3.6	4.0	2.5	7.8	4.1	10.1	6.0	6.9	4.8	4.7	2.9	6.1	4.2	5.0	3.3
2017	4.0	2.5	5.2	2.9	4.0	2.3	7.1	3.8	9.4	4.9	6.7	4.4	4.2	2.6	5.7	3.4	4.9	3.0
2018	3.4	2.3	5.0	2.3	3.8	2.1	6.0	3.4	9.1	3.8	6.3	4.0	3.6	2.4	5.5	2.7	4.6	2.8
Ratio	1.3	1.0	1.5	2.4	1.5	1.8	1.2	1.0	1.4	2.0	1.4	1.7	1.2	1.0	1.4	2.0	1.3	1.7

It may in fact be the case that the Netherlands experienced the most dramatic increase in suicide rates because it also had the most dramatic increase in unemployment. However, it needs to be emphasized that the analysis of unemployment presented here is very inadequate for making a causal connection, even if it remains a possibility. The true purpose of this exhibition is to show that there are nuances to consider with an event as complex as the 2008 Recession. These nuances vary from one country to another and have the potential to create the different suicide rate outcomes. Therefore, reasoning that each country was affected by the recession is not a basis for rejecting the idea that this event was the cause of the dramatic suicide rate growth in the Netherlands, which is what Boer (2017) has done.

Argument 3

In this final argument, Boer (2017) discusses an article that reports the Statistics Netherlands (Centraal Bureau voor de Statistiek [CBS]) data on suicides in 2016 (van de Wetering, 2017). The data indicate that suicides have been increasing and increased again in 2016. Boer (2017) ponders why the numbers are increasing and quotes a CBS spokesperson from this article. The CBS spokesperson mentions the growing public discourse around euthanasia and believes that people may be reacting to this discussion through suicide. In other words, the public acceptance of euthanasia had triggered a suicide contagion.

This argument faces a similar issue as the first one. Boer (2017) raises concern over the total number of suicides, but suicide rates are needed to determine whether the growth is due to a population that is also growing. Suicide rate data shown in Figures 1 and 2 indicate that a growing population is a probable cause of the growing raw suicide numbers because suicide rates have not changed between 2013 and 2016. This fact is also reported in the article and is attributed to a

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statement by the CBS. The article Boer (2017) discusses was overall focused on why suicide rates increased in the elderly (which consequently means that suicide rates dropped in younger age groups). To address this observation, the article says that, “Statistics Netherlands does not have any hard data on causes for the increase among the elderly, but it does have suspicions based on other studies. The agency sees a connection between suicide and marital status,” (van de Wetering, 2017). Secularization and suicide contagion are then proposed as additional possibilities by the CBS spokesperson.

Existing Evidence

Using a simple observation of trends to infer causal relationships is an error that is shared between most of Boer’s (2017) arguments. There are two quasi-experimental studies that use more sophisticated approaches to evaluate the association between the onset of a euthanasia policy and suicide rates in a jurisdiction.

Jones and Paton (2015)

The first study was conducted by Jones and Paton (2015). The setting involved four American states, though only two states, Oregon and Washington, were eventually analyzed because data was not available in the others at the time of the study. The study was conducted as a time series analysis using grouped logistic regressions and control groups.

In contrast to the Netherlands, only physician-assisted suicide, and not euthanasia, has been legalized in these states. The eligibility requirements are also much more restrictive. To receive an assisted suicide, a patient must have a terminal illness with death foreseeable in the next six months. The drastic differences in the conduct of assisted dying between American states and the Netherlands warrant that caution be used when generalizing the results from this study.

With that said, however, Jones and Paton (2015) did not find that suicide rates were affected by the introduction of the physician-assisted suicide policy. “The results pertaining to nonassisted suicide rates [nonassisted is used to differentiate “traditional” suicide from physician-assisted suicide] were equivocal. Some estimates suggested that PAS [physician-assisted suicide] also was associated with a significant increase in the rate of nonassisted suicide. When we included state-

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specific trends, however, the estimated association, although positive, was smaller and no longer statistically significant," (p. 603). In other words, once measurable confounders were controlled for in the statistical model, there was no significant change in the suicide rate.

Nanner (2019)

Nanner (2019) used Belgium as the study setting and thus the results are much more applicable to the Netherlands. Nanner (2019) used the synthetic control method to analyze suicide rates in Belgium. With this jurisdiction as the study setting, generalization of the results to the Netherlands is possible. Both the Netherlands and Belgium had their euthanasia policies take effect in 2002, both allow euthanasia for chronic physical and mental disorders, and both allow assisted suicide and euthanasia. The proximity of these two countries and their membership in the European Union also aids external validity because it enforces similarity between the two countries.

The results of this study ultimately produced the same conclusion that Jones and Paton reached. "Using the synthetic control method, I was unable to find evidence that the legislative adoption of assisted dying affected suicide rates in Belgium. Suicide rates were used as an indirect measure of suicide contagion, and thus I also do not find evidence of suicide contagion. The different tests performed as part of the synthetic control analysis were fairly consistent in determining this result," (Nanner, 2019, p. 58). Nanner (2019) also performed a sensitivity analysis where the 2008 Recession was controlled for. This analysis also failed to show an effect on suicide rates. However, the sensitivity analysis has dubious reliability because there were few time points available to analyze, a consequence of how the tests were structured.

Conclusion

Boer (2017) used suicide trends in the Netherlands to state that the euthanasia policy contributed to a rise in suicides. However, his analysis has a number of weaknesses that invalidate his conclusion. Two quasi-experimental studies exist on this topic and both used statistical techniques to control for a number of validity threats (Jones and Paton, 2015; Nanner, 2019). Both of these studies found no evidence that associates euthanasia with an increase in suicides, at least from a population perspective (Jones and Paton, 2015; Nanner, 2019). This consequently means that there is no reason to believe, at the present moment, that the legislation of euthanasia policies

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will cause a suicide contagion. While these studies also have their share of limitations, they are far less substantial than the approach taken by Boer (2017). Additionally, this conclusion opposes the proposal that euthanasia can decrease suicide rates; as of now, the two variables do not have an association with each other in either direction.

As Lowe and Downie (2017) point out, there is very little information available on the relationship between euthanasia and suicidality. Because of this, any articles that do get published will receive excessive attention from the media and in policy discourse. Such an example comes from the expert panel commissioned by Canadian Parliament in partnership with the Council of Canadian Academies (CCA). In addition to two other issues, the expert panel was tasked with synthesizing all available literature regarding assisted dying when mental disorders are the sole reason for the request (CCA, 2018). When discussing the threat of a suicide contagion, just two papers were used by the panel because they were the only relevant peer-reviewed sources at the time. In addition, Google Scholar shows that there are at least two publications that have referenced Boer's (2017) conclusion while making statements that euthanasia can increase suicide rates (English, Alper, Cilio, & Liverman, 2018; Sulmasy, 2018). Considering that only a handful of studies look at this association, it is doubtful that the authors of those publications or their readers come across the studies that show there is no relationship. The lack of information on this topic has undoubtedly hampered a legitimate discussion of the euthanasia-suicide contagion relationship, but academics can change this by pushing more reliable studies to the forefront and ensuring that the limitations of faulty publications are known.

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