

Amish Mortality Rates in the Twenty-First Century

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Abstract: This research documents the mortality rates of the Amish from 2014 through 2021 using data found in *The Diary of the Old Order Churches*, a monthly publication designed to serve the Old Order Amish throughout the Americas. Data collected included month and year of death, age at death, gender, place of death by state/province/country, reported cause of death, and family name of parents in cases of stillbirth or infant mortality. Data revealed that the Amish have experienced five peaks in death rates, two prior to COVID and three during the COVID pandemic. Data also revealed differences in deaths due to accidents, cancer, and heart issues related to gender.

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Introduction

In the past fifty years, researchers and authors such as Burdge (personal communication, winter 2022), Donnermeyer (2015; personal communication, April 2022), Donnermeyer and Luthy (2021), Kraybill et al. (2018), Luthy (2020), and Nolt (2016), as well as data collected at the Young Center for Anabaptist and Pietist Studies (2021) at Elizabethtown College, have documented the rapid growth in “typical” Amish settlements throughout the United States (e.g., settlements in Ohio, Pennsylvania, Indiana, Illinois, Missouri, and Wisconsin). Many of these authors have also documented the rapid movement of Amish populations into new states and provinces, as well as into Central and South America. Furthermore, Luthy’s 2020 article described the record increase in the number of new Amish settlements in all areas between 2010 and 2019.

In recent years, the world has endured a global pandemic, which has impacted all groups in a variety of ways. During this pandemic, the U.S. national news media inundated consumers with gloom-and-doom reports from metropolitan regions but rarely mentioned the effects on rural populations. Consumers were informed of the death rates each day and the term *excess deaths rates* was soon used. The Centers for Disease Control and Prevention (CDC) defines excess deaths as “the difference between the observed numbers of deaths in specific time periods and expected numbers of deaths in the same time periods” (Centers for Disease Control and Prevention, 2020). The present study collected Amish mortality information from 2014 through 2019 to get a baseline for expected number of deaths. Rossen and colleagues (2020) reason that comparing *expected deaths to observed deaths* allows researchers to make historical comparisons.



An informative study that documented the recent mortality rates among rural Amish and Mennonite populations was conducted by Stein et al. (2021). Stein and her West Virginia University colleagues used information from *The Budget* to determine excess death rates among the Amish and Mennonites. (*The Budget*, published in Sugarcreek, Ohio, is a weekly newspaper that compiles reports from scribes in various Amish and Mennonite communities.) Stein's research team gathered data from 2015 through 2020 and found that a rise in excess deaths began to occur in March 2020, had a mini peak in June 2020, and culminated at its highest peak in November 2020.

Much earlier research by Hamman et al. (1981) studied mortality patterns among the Old Order Amish of Indiana, Ohio, and Pennsylvania. They found that Amish mortality rates are similar to those of other rural residents. A Google search on September 7, 2020, found no historical data on death rates among the Amish by other researchers.

Motivated by the thought-provoking research of Stein et al. (2021), this author wanted to determine if one would find similar peaks in the mortality rate of the Amish. The researcher used *The Diary of the Old Order Churches*, a monthly publication designed to serve the Old Order Amish. The masthead of *The Diary* states that it is "a contribution of the church for the church by the church in the interest of collecting and preserving its historical virtues." The compilation of mortalities began with 2014 to get a broad baseline set of historical data. *The Diary* was used instead of *The Budget* because, as noted by Kraybill et al. (2018), *The Budget* includes information from a broad spectrum of Amish and Mennonites. The current study documents only Amish deaths reported in *The Diary* from January 2014 to December 2021.

Methods

Data for the project was collected from the obituaries and birth announcements sections of *The Diary*.¹ Many stillbirths and occurrences of infant mortality are listed in the birth announcements section and are not in the obituary section. The accident section of *The Diary* was also used as a source given that a small number of deaths are reported there and are not in the obituary section. The data collected included month and year of death, age at death, gender, place of death by state/province/country, and reported cause of death (if stated). As the compilation progressed, the researcher soon realized that there were many stillbirths and infant deaths reported each month. At that point, this data was collected and included in the study as well.

The number of stillbirths and infant deaths was tabulated by month, and the family name of the father and the mother was also recorded. (The collection of family names was suggested by a concerned Amish father in Holmes County, Ohio.) All data was entered into SPSS software for

¹ Library research for this project was conducted at the Menno Simons Historical Library at Eastern Mennonite University. Special thanks to Simone Horst, Special Collections Librarian and Archivist, for her assistance. Additional library research was conducted at the Ohio Amish Library, Berlin, Ohio. Thank you to Adam Hershberger, Librarian and Archivist, for his assistance. And thank you to Milo Miller for information relative to this research.

subsequent data analysis. Chi-square analysis was used to test for significant differences in the data.

Several limitations to this research should be noted. First, *The Diary* is a publication that depends on reporters, or “scribes,” in Amish settlements to submit information each month. In some instances, the information submitted by the reporters might not be accurate because they learned of it second- or thirdhand. On occasion, written materials from scribes are damaged in transit or are missing key information. Further, the information submitted by the scribes is then typed at *The Diary* office. With 140 pages of single-spaced material in each issue, one can surmise that a small number of typing errors may occur. *The Diary* may not have reports from some Amish communities if there is no scribe in that settlement or if the community is not interested or does not have the time or desire to submit the information. Also, although *The Diary* is a publication designed to serve the Amish, there are instances of Old Order Mennonite (OOM) deaths being reported. The researcher removed OOM deaths when it was obvious, but some may still be in the data set. Lastly, the causes of death are from the reporters, not from official medical records or coroner reports. All data needs to be viewed with these limitations in mind.

Results

There were 6,490 Amish deaths reported between January 2014 and December 2021. Males accounted for 52.3% of these deaths and females for 47.0%, with the gender of 0.7% unknown. Further, 12.0% of deaths were stillbirths and 9.9% were infant mortality cases (child dies after birth and before age 1). As would be expected, the largest number of deaths occurred in the largest settlements (see Table 1). It is interesting to note, however, that Ohio had the largest percentage of deaths (25.6%) even though it is second in estimated population (Young Center, 2021) to Pennsylvania, which had 25.1% of the deaths. Indiana was third with 18.2%, Wisconsin was fourth with 5.5%, and Missouri was fifth with 3.8%.

Table 1

Location of Amish Deaths, 2014–2021 (N = 6,490)

State/Province	%	State/Province	%
Ohio	25.6	Kentucky	2.4
Pennsylvania	25.1	Ontario	1.8
Indiana	18.2	Delaware	0.8
Wisconsin	5.5	Maryland	0.8
Missouri	3.8	Minnesota	0.8
Michigan	3.3	Tennessee	0.8
New York	3.1	Kansas	0.5
Iowa	2.6	Oklahoma	0.4
Illinois	2.6	Virginia	0.4

Note. Other areas = 1.5%.

Table 2 documents the number of Amish deaths per month from 2014 through 2021. Seven of the months showed large differences compared to the expected. These differences were significant at the .01 level of probability (chi-square $df = 7$). The average number of Amish deaths per month prior to the onset of COVID in the United States was calculated from the 2014–2019 data and was used as expected deaths per month. Table 2 reveals several dramatic spikes in the number of deaths compared to what might be expected. Chronologically, the first spike occurred in January of 2015 with 89 deaths, 15.2 more than expected. What might be the reason for this occurrence? A report “From Lancaster County, PA” on page 41 of the February 2015 issue of *The Diary* stated, “Lots of sick people in some areas and homes.... We keep spraying [school] rooms with 35% peroxide... hoping to kill germs.” Table 3 shows that 29% (4% more than average) of Amish deaths in January 2015 occurred in Pennsylvania. Speculatively, perhaps these increased deaths were due to respiratory illnesses.

Table 2*Amish Deaths per Month, 2014–2021*

Year	Month												Avg.
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
2014	59	68	61	55	37	51	46	69	54	60	62	73	58
2015	89*	57	70	67	61	62	55	76	62	58	71	69	66
2016	68	64	64	62	68	65	47	61	52	59	87	50	62
2017	72	78	74	56	64	57	51	55	71	53	79	63	64
2018	73	76	78	55	73	65	47	66	57	68	71	64	66
2019	82	100*	76	71	65	66	55	60	65	53	63	75	69
Average ^a	73.8	73.8	70.5	61	61.3	61	50.2	64.5	60.2	58.5	72.2	65.7	
2020	64	71	57	65	91*	98*	72	60	59	108*	123*	83	79
2021	58	72	70	79	68	65	63	76	74	105*	94*	80	75

^a Average number of deaths from 2014 through 2019. This is the expected number of deaths per month over that time span, which was prior to the first confirmation of COVID in the United States on January 20, 2020.

* Significant difference at $p < .01$, chi-square $df = 7$

The next spike in mortality occurred in January and February of 2019, a year prior to the arrival of COVID in the United States. February 2019 had 26.2 more deaths than expected. Again, what might be the reason for this occurrence? Two sources mention that a hard flu occurred in the winter of 2019. A Baltic, Ohio, scribe in the March 2019 issue of *The Diary* (p. 64) wrote, “It seems like there are a lot of cases of flu going around.” When reviewing the data, a Holmes County father stated, “I remember that in the winter of 2019 many people were sick with the flu and many schools were closed for a time due to the flu” (personal communication, April 2022). It appears, therefore, that some deaths during this period may have been due to respiratory illnesses. Table 3 shows that 27% of Amish deaths in January 2019 were in Ohio and that 26% of deaths in February 2019 were in Pennsylvania.

Table 3*Percentage of Deaths by State for Selected Peak Months and States*

Month	Ohio	Pennsylvania	Indiana
Jan. 2015	27%	29%	11%
Jan. 2019	27%	22%	16%
Feb. 2019	22%	26%	18%
Oct. 2020	28%	17%	20%
Nov. 2020	28%	22%	20%
Oct. 2021	28%	17%	15%
Nov. 2021	21%	25%	25%

A third rise in the death rate occurred in May and June of 2020. There were 29.7 more Amish deaths than expected in May 2020 and 37 more than expected in June 2020. This peak is most likely due to COVID because the first confirmation of COVID in the United States was on January 20, 2020 (Centers for Disease Control and Prevention, 2022).

A fourth peak in Amish deaths took place in October and November of 2020. The largest number of deaths—123—occurred in November. This is 50.8 more deaths than expected for that month. It is the same month in which Stein et al. (2021) documented a peak in death rates for the Amish and Mennonites as recorded in *The Budget*. The average age of death in November 2020 was 67 with a standard deviation of 27, and males accounted for 61.5 % of those deaths. Thus, the average age of death in November was higher than the overall average, and the percentage of men that died is higher than the average (see Table 4). October 2020 had 49.5 more deaths than expected.

Table 3 illustrates that the Amish of Ohio had a larger percentage of deaths than the Amish of Pennsylvania in both October and November of 2020. A more detailed review of the stated causes of death in November 2020 revealed no obvious patterns. In 73% of the cases, the cause of mortality was unstated. In addition, general statements of cause of death accounted for 10% of cases being listed as a “brief illness” and another 9% indicated a “lengthy illness” as cause of death.

It should be noted that COVID was only mentioned three times in the obituaries section of *The Diary* for Amish deaths from 2014 through 2021. The report of one death in Ohio in October 2020 stated that the person had COVID and pneumonia. One death in December 2020 in Kentucky and another in November 2020 in Indiana listed COVID as the cause of death.

A fifth rise in Amish mortality occurred from October through November of 2021. The largest number of excess Amish deaths took place in October of that year at 105 deaths (28% in Ohio), which is 46.5 more than expected. November 2021 had 94 deaths (25% in Pennsylvania), 21.8 more deaths than expected.

Tables 4, 5, and 6 compare female and male deaths from 2014 through 2021. Table 4 shows that the average age of death for females was almost six years older than males and that more males died than females during that period. Note that this data includes stillbirths and that 44 reports were missing data on gender.

Table 4*Total and Average Age of Death for Females and Males (Stillbirths Included)*

	Male	Female
Number of deaths	3,394	3,052
Mean age of death	50.3	56.1
Standard deviation	35.2	35.6

The stated cause of death was provided in some obituaries. However, in a majority of cases—65%—the cause of death was not mentioned. Table 5 ranks the stated cause of death due to various types of accidents and compares males to females. As the data shows, males are more likely to die from accidents of any type. For example, farm accidents are a cause of death at a rate of 2.1% for males and 1.2% for females. Horse-drawn vehicles, scooters, or bikes versus a motor vehicle accident was the stated cause of death for 2% of males and only 0.3% of females. Despite being a very small share of all deaths, their dramatic nature made such accidents headlines in the accidents section of *The Diary*, such as “Boy and Girl Killed in Truck/Buggy Accident” (January 2018, p. 22).

Table 5*Number and Percentage of Deaths Due to Accident*

Type of accident	Male		Female	
	<i>n</i>	%	<i>n</i>	%
Farm accident	73	2.1	37	1.2
Horse-drawn / bike v. motor vehicle	70	2.0	10	0.3
Work accident	43	1.2	1	0.0
Traffic or in motor vehicle	39	1.1	16	0.5
Drowning	32	0.9	11	0.4
Accident in general	27	0.8	5	0.2
Home accident	21	0.6	5	0.2
Horse accident	14	0.4	3	0.1
Motor vehicle as a pedestrian	10	0.3	8	0.3
Bike accident	6	0.2	1	0.0

Table 6 shows the number and percentage of deaths related to health conditions. Females are more likely to die from cancer and males are more likely to die from heart-related conditions. Stillbirths and infant deaths account for 20% of deaths for both males and females. Some reports also indicate the place of death (home or hospital): for example, an infant daughter “died...at home in the arms of her parents.” (*The Diary*, April 2021, p. 19.) As noted previously, 65% of obituaries do not state the cause of death.

Table 6

Number and Percentage of Deaths Due to Stated Condition/Cause of Death

Cause of death	Male		Female	
	<i>n</i>	%	<i>n</i>	%
Cancer	170	5.0	187	6.1
Heart	161	4.7	94	3.1
Stroke	35	1.1	45	1.5
Stillbirth	386	11.4	318	10.4
Infant mortality	332	9.8	311	10.2
Natural cause or decline in health	125	3.7	152	5.0
Lengthy illness	98	2.9	112	3.7
Brief illness	86	2.5	90	2.9

Note. Conditions with combined male and female death rates of less than 1%: Alzheimer's, aneurysm, blood clot, congenital disorder, crib death, dementia, fire, flu, genetic disorder, GI tract issue, kidney, ill since birth, infection, lightning strike, leukemia, liver disease, lung disease, lymphoma, Parkinson's, pneumonia, preemie, seizure, tornado, Trisomy, and Yoder dystonia.

Amish informants suggested an analysis of stillbirths and infant mortality related to family names of the parents. Table 7 provides a list of the most prevalent family names. As one might expect, the most common names have more stillbirths and infant deaths. Additional research would be needed to determine if specific families, perhaps connected by common ancestors who immigrated to North America, are related to certain causes of death, which would hint at a genetic cause. A key finding was that there were 107 different family names for fathers and 104 different last names for mothers. Further research using Amish directories could determine the percentage of Amish with each family name and then compare that to the results in Table 7 to ascertain if there are any patterns.

Table 7*Number and Percentage of Parents of Stillborn or Infant Death by Family Name*

Family name	Mother		Father	
	<i>n</i>	%	<i>n</i>	%
Miller	179	2.8	153	2.4
Yoder	117	1.8	119	1.8
Schwartz	69	1.1	91	1.4
Stoltzfus	79	1.2	94	1.4
Byler	51	0.8	55	0.8
Hershberger	42	0.6	50	0.8
King	42	0.6	46	0.7
Troyer	30	0.5	45	0.7
Gingerich	33	0.5	45	0.7
Mast	27	0.4	43	0.7
Beiler	41	0.6	45	0.7

Tables 8 and 9 illustrate the number of stillbirths and infant mortality cases per month from 2014 through 2021. The data reveals that, on average, stillbirths and infant mortality are less common in July ($4.9 + 6.3 = 11.2$) and most prevalent in January ($6 + 10 = 16.7$) and October ($8.5 + 7.8 = 16.3$).

There are no reasons stated in *The Diary* for stillborn deaths, and for most infant deaths, the cause of death is not listed. When it is, the most common causes were heart issue (5.6%), congenital disorder (4.2%), ill since birth (3.7%), genetic disorder (3.1%), crib death or SIDS (2%), and premature birth (1.2%). There were 27 cases of infant mortality in February and March of 2017, the largest number in a two-month span between 2014 and 2021. Further research is recommended to discern reasons for the sizable number of infant deaths and stillbirths.

Table 8
Infant Mortality Rates, 2014–2021

Year	Month												Total
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
2014	5	5	3	4	4	5	7	9	8	7	2	4	63
2015	10	9	7	5	6	6	1	10	9	7	5	9	84
2016	4	6	7	10	10	9	5	6	8	9	6	5	85
2017	7	10	17	7	5	8	5	5	10	4	11	10	99
2018	4	9	11	4	11	10	2	5	11	10	4	4	85
2019	6	9	8	5	6	10	7	5	5	5	4	9	79
2020	6	7	2	2	8	6	4	5	7	11	4	6	68
2021	6	9	5	8	5	5	8	5	5	15	4	7	82
Avg.	6	8	7.5	5.6	6.9	7.4	4.9	6.3	7.9	8.5	5	6.8	

Table 9
Stillbirth Rates, 2014–2021

Year	Month												Total
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
2014	9	7	4	14	5	8	10	11	5	7	6	10	96
2015	10	6	5	6	8	10	7	11	10	8	10	4	95
2016	14	9	9	6	6	11	5	5	6	7	11	7	96
2017	8	7	7	4	6	9	3	10	6	2	8	6	76
2018	10	10	5	5	7	7	3	6	9	7	7	5	81
2019	10	6	8	10	13	5	6	11	10	5	9	12	105
2020	9	8	7	7	5	9	12	7	6	13	9	7	99
2021	5	7	10	9	7	13	4	5	11	13	6	6	96
Avg.	10.7	8.6	6.9	7.6	7.1	9	6.3	8.3	7.9	7.8	8.3	7.1	

Conclusions and Discussion

The data reveals that the Amish have experienced five peaks in death rates, including two prior to the onset of COVID and three in the era of COVID. This is not an unexpected finding given that CDC researchers such as Ali et al. (2020) state that infectious diseases (SARS-CoV-2, for example) spread quickly in communities that are considered to have close ties and limits to the outside world. Given the ease of transmission of COVID, one could assume that the peaks after 2019 were related to the COVID pandemic. Thus, rural, insulated populations (like the Amish) as well as metropolitan areas were and are affected by the virus. The differences between male causes of death and female causes of death were unexpected but might be related to the different roles of females and males in Amish society.

The number of accidents, stillbirths, and cases of infant mortality are a concern and deserve more study. For example, the number of drownings would seem to be a safety concern that could easily be addressed with the use of life vests and education. Further, very recent research by McCrea (2022) documented that members of several newly established Amish settlements in New York mention birthing centers and prenatal care as two of the most important health services for their families and communities. That stillbirths are a concern in Amish and Mennonite communities is suggested by “Farewell to a Stillborn,” a poem in the June 2022 issue of *Family Life* (p. 24) that describes the grief associated with a stillbirth. The seventh stanza of the poem captures a glimpse of the grief as well as a glimmer of hope:

There is so much we did not know
Before this sudden pain,
But this we know – our rosebud’s death
Will never be in vain.

Some types of accidents would be hard to address given the number of motor vehicle wrecks with buggies, bikes, or scooters. For example, sometimes buggies are hit from behind because the motor vehicle driver is blinded by the sun (*The Diary*, 2021, p. 27). On a positive note, recent work by Ohio Mid-Eastern Governments Association representative Jeannette Wierzbicki analyzed township crash reports from 2019 through 2021 that focused on a township-by-township review of Holmes County (Mast, 2022). Wierzbicki recommended a three-tiered approach to reducing crashes: signage, education, and determining safer paths to school for students.

The data also reveals plenty of opportunities for further research. Are there peaks in death rates in the twenty-first century prior to 2014? Will peaks be present in the future? Why do these peaks occur? How do Amish stillbirths and infant deaths compare to the North American population? How do Amish mortality rates vary by settlement? Do the two largest settlements differ in any major way? How do large settlements (those with 15 or more church districts) differ from small settlements (those with less than three church districts)? Are familial patterns evident in death rates or causes of death? How do accidents contribute to Amish death rates and how can they be reduced?

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Erratum

12/5/2022: Activated links in PDF file.